

APPENDIX B

Below-Grade Demolition and Soil Excavation Technical Specifications

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Below Grade Demolition and Soil Remediation
Construction Specifications
Former Pechiney Cast Plate, Inc.
Vernon, California

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SECTION 01110

SUMMARY OF WORK

PART 1 – GENERAL

1.01 DEFINITIONS

- A. The following definitions are used in the specifications and supplement the General Conditions of the Contract.
1. CONTRACTOR shall mean the prime service provider contracted directly with OWNER.
 2. ENGINEER shall mean AMEC Environment & Infrastructure (AMEC) [formerly AMEC Geomatrix, Inc., and Geomatrix Consultants, Inc. (Geomatrix)]
 3. OWNER shall mean Pechiney Cast Plate, Inc. (Pechiney)
 4. Site shall mean the former Pechiney Cast Plate Facility and Property located at 3200 Fruitland Avenue in Vernon, California.
 5. ALCOA shall mean former Site Owner who operated the facility prior to 1999.
 6. Contract Documents shall mean Instructions to Contractors, The Proposal Form, and the Contract Documents (including specifications, drawings, historic drawings, and all Addenda issued prior to recipient of proposals as well as Change Orders, Contractor Submittals, and other Addenda issued after award of Contract.)
 7. Project Record Documents shall refer to As-Built records and Drawings to be maintained by the CONTRACTOR at the Site for submittal to the ENGINEER upon completion of the Work.
 8. COPCs shall mean Constituents of Potential Concern.
 9. Below Grade shall mean the depth below the natural grade of the Site that corresponds to the current parking lot surfaces along the east side of the former buildings (graded for stormwater control). Below Ground Surface (bgs) shall refer to the depth below the soil surface at the Site. This definition typically refers to deeper lithologic units as determined from previous Site characterization activities. The elevation of the parking lot pavement ranges from approximately 185 to 183 - feet above mean sea level (msl) (NAVD 88).
 10. Slab Grade shall mean the top of floor slabs of the former buildings at an approximate elevation of 187 - feet msl.

- 11. PCBs shall mean polychlorinated biphenyls.
- 12. VOCs shall mean volatile organic compounds.
- 13. SWPPP shall mean Stormwater Pollution Prevention Plan.
- 14. PCCP shall mean Portland cement concrete pavement.
- 15. ACP shall mean asphalt concrete pavement.
- 16. Drawings shall mean design sheets G-1 to G-9B.

1.02 RELATED REQUIREMENTS

- A. The Drawings, the provisions of the Contract including the General Conditions apply to the Work of this Section.
- B. Section 01330 – Submittals and Procedures

1.03 PROJECT BACKGROUND

Pechiney Cast Plate, Inc. (Pechiney) closed its facility located in Vernon, California. The property occupies approximately 27 acres. Pechiney (OWNER) recently demolished the existing aboveground facilities and improvements down to concrete Slab Grade as part of the agreement to sell the property to the City of Vernon (City). AMEC (ENGINEER) was the OWNER'S consultant and Site manager for that project.

1.04 EXISTING SITE CONDITIONS

All aboveground structures have been demolished. Former building floor slabs, foundations, footings, pits, sumps, and pavement surfaces remain in place. The former buildings, which included the Casting Building (104) and Processing Buildings (106, 108, 110, 112, 112A) occupied approximately 14 of the 27 acres. The building floor slabs are reinforced concrete approximately 9 to 12 inches thick on partially raised grade (the concrete may be thinner or thicker in some areas). Many building slabs, which formerly contained wood block flooring over concrete, were replaced with predominantly a concrete overlay; in some areas, the overlay is asphalt. Steel rails or tracks are embedded in the floor slab throughout the building. The building slabs are underlain by buried concrete foundation column and footing structures ranging in depth from 4 to 12 feet below Slab Grade. There are several equipment foundation pits ranging from 4 to 70 feet in depth below Slab Grade. In addition, several foundations for former equipment and concrete pipe ducts are present at the Site. There are no known basements present.

The remainder of the property is presently paved with approximately equal areas with asphalt (approximately 245,000 square feet) and concrete (approximately 175,000 square feet). The roadway and parking lot pavement thicknesses vary. The average asphalt thickness is

approximately 3 inches and the average concrete thickness is approximately 9 inches. The CONTRACTOR may assume that the concrete roadway pavements outside of former building footprints are un-reinforced. Several rail spurs are present on-Site, two of which are not owned by Pechiney and are excluded from this project. Some of the railroad tracks are buried Below Grade.

Historically, lubricating oil that contained PCBs was used and the lubricating oil impacted some of the concrete slab surfaces and subsurface soil. In addition to PCBs, metals and VOCs comprised of TCE and PCE, and Stoddard Solvents are present in several subsurface soil areas throughout the Site at various concentrations. Three groundwater monitoring wells are also present at the Site.

1.05 SUBSURFACE CONDITIONS

Previous subsurface investigations suggest the Site is underlain by fine-grained (predominantly silt) and coarse-grained (predominantly sand) sediments (referred to by others as Recent Alluvium) from ground surface to approximately 40 - feet below ground surface (bgs). Below this material is predominantly silt and clay (referred to by others as the Bellflower aquitard) from approximately 40 to 85 feet bgs, and predominantly sand (referred to by others as the Lakewood Formation) to a depth of at least 161.5 feet. The deepest boring drilled at the Site is 161.5 feet, according to documents reviewed by Geomatrix (Geraghty & Miller, 1991). The depth to groundwater at the Site is approximately 150 feet Below Grade.

1.06 CONTRACT SCOPE

- A. Removal of slabs, pavements, and Below Grade structures, and the excavation of impacted soil are included in this Below Grade Demolition and Soil Excavation Scope of Work.
- B. CONTRACTOR shall provide all necessary labor, materials, equipment, tools, supplies, and protective equipment as required to affect a complete and finished job acceptable to ENGINEER and OWNER and in compliance with all applicable Laws and Regulations. In general, the Work consists of demolition of slabs, pavements and subsurface structures, excavation and off-Site disposal of VOC, PCB, and metals -impacted soil, removal and off-Site disposal of PCB-impacted concrete slabs, pavements, and subsurface features, backfilling, and rough grading the Site to the lines and grades shown in the Drawings. Specifically, Work under this Contract includes, but is not limited to, the following tasks:
 - 1. Developing submittals, obtaining all required permits, and making all necessary Agency notifications. Submittals include Work Plans, health and safety plans, progress schedules, quality control plans, payment schedules and others as defined in the Contract Documents. Permits are summarized in Part 1.16 below. Submittals are included in Section 01330.

2. Mobilization and Site preparation, including installation of CONTRACTOR'S temporary facilities and controls, Site services, Site security, and stormwater management and controls. The stormwater management systems at the Site consist of collection piping and catch basins. The primary stormwater system located within the eastern parking lot shall be left in place during Below Grade Demolition. Stormwater Best Management Practices (BMPs) shall be maintained throughout the Below Grade Demolition and Soil Excavation Work. Maintenance and monitoring of stormwater BMPs shall be terminated following receipt of the Closure Certification from the City. Upon Site closure, stormwater management will become the responsibility of the future property owner.
3. Demolition of former building slabs and pavement surfaces as shown on the Drawings.
4. Below Grade Demolition and removal of man-made structures, footings, foundations, pits, and sumps within the footprint of the former buildings, and other specific structures located adjacent to the former building areas. Structure types and associated removal depths Below Grade are summarized below:
 - a. Building Foundations and Footings: A majority of the building foundation footings extend to a depth of 11 to 12 - feet below the floor slab. All building foundation footings shall be removed in their entirety during demolition, unless the foundation footings are attached to deeper concrete structures that prevent their complete removal. If this is the case, structures shall be removed to 10 - feet Below Grade and the horizontal and vertical locations of the top portions of remaining structures deeper than 10 - feet shall be backfilled in place, surveyed and documented in the Project Record Documents.
 - b. Man-made structures (other than building foundation footings) such as pits and sumps are present within the former building footprints and located within the upper 10 - feet Below Grade that were associated with Pechiney Cast Plate's previous operations. These structures shall be demolished in their entirety.
 - c. Deeper portions of man-made structures such as vertical pits that extend beyond 10 - feet Below Grade shall be demolished to a depth of 10 - feet Below Grade and the remaining deeper portion of the structure shall be pierced in their floor to facilitate drainage of any water that may collect in the pit, followed by backfilling with Pea Gravel, mechanically vibrated as it is placed, then capped with cement concrete.
 - d. Portions of previously backfilled-in-place man-made subsurface structures that extend deeper than 10 - feet Below Grade and are located beneath the former building footprints, shall be demolished to a depth of 10 - feet Below Grade. Reportedly, these deeper structures were decommissioned in place by ALCOA during previous facility closure activities, with approval granted by the City of

Vernon, by backfilling with Pea Gravel (or similar material) and capping at or near the surface with concrete. The upper portions of these deeper structures shall be demolished from slab grade to a depth of 10 - feet Below Grade and the remaining deeper portions shall be capped with concrete and left undisturbed. If present, previously backfilled material shall be recovered from these structures and set aside for use as backfill pending analysis from ENGINEER. Horizontal and vertical locations of the top of these exposed structures shall be surveyed and recorded on the Project Record Drawings.

5. Removal and/or backfilling of subsurface utilities and pipelines. Utilities and pipelines located within 3 - feet Below Grade shall be removed. Other utilities, such as sewer lines, pipelines, electrical conduits, utility piping, and others, that are present at depths exceeding 3 - feet Below Grade shall be backfilled in place by filling them with cement slurry. Stormwater system piping shall be maintained in its existing condition to the extent practicable and as required to comply with the Stormwater Pollution Prevention Plan (SWPPP). Exploration trenching shall not be conducted to locate utilities that remain in place or utilities that were filled with slurry. Those utilities not being used in performance of Below Grade Demolition Work shall be cut and capped at the property boundary. Other utilities such as select storm drains (**excluding** the on-Site storm drain catch basins in the Phase VI area and their connection to outfall #8 that discharges at Alcoa Avenue) and sewer connections employed during Below Grade Demolition and Soil Excavation Work shall be cut and capped at the property boundary prior to the completion of Site Work. The points where known utilities enter the property or where utilities are encountered during Below Grade Demolition Work shall be documented on a map and made part of the Project Record Documents.
6. Excavation, staging and stockpiling, and off-Site disposal of soils impacted with PCBs, TPH, metals, and VOCs. Soil excavation in PCB-impacted areas shall extend to approximately 12 - feet below slab grade. Soil excavation in specific VOC-impacted areas shall extend to approximately 12 - feet Below Grade as needed to remove footings, or as directed by ENGINEER. All soil excavation Work shall comply with South Coast Air Quality Management District (SCAQMD) requirements including SCAQMD Rule 1166 monitoring. Some excavation areas shall require shoring.
7. Removal, handling, loading, and off-Site disposal of concrete impacted with PCBs. PCB-impacted concrete removed shall be direct loaded into hauling vehicles for disposal. All PCB-impacted concrete removal Work shall comply with Toxic Substances Control Act (TSCA) 40 CFR 761.
8. On-Site crushing of concrete debris associated with demolition activities for reuse on-Site as backfill. Recycled, crushed aggregates obtained from on-Site crushing shall be comprised of crushed, recycled PCCPs that do not contain COPCs at concentrations exceeding risk-based regulatory screening levels. Asphalt debris shall

- be transported offsite for recycling or disposal as a solid waste. Concrete debris containing PCBs greater than 1 mg/kg, but less than 3.5 mg/kg shall be handled and stockpiled as a TSCA waste. CONTRACTOR shall segregate and pulverize all concrete containing PCBs greater than 1 mg/kg, but less than 3.5 mg/kg for reuse as Restricted Use fill and placement in areas shown on the Drawings. CONTRACTOR shall segregate and stockpile asphalt, concrete debris, and PCB-impacted concrete debris separately.
9. Backfilling and compacting of subsurface structure removal areas and soil excavation areas with recycled crushed aggregates and backfill material recovered from previously backfill subsurface features extending to 10-feet Below Grade. Backfilling of select deeper pits with imported Pea Gravel. Crushed concrete placed as Restricted Use fill shall be covered with an interim cap as shown on the Drawings.
 10. Rough Site Grading. After removal of all structures and completion of Soil Excavation Work, the Site shall be rough graded for the purposes of contouring the surface for drainage control and to minimize ponding, and eliminating open trenches or excavations that could pose a safety hazard. Because soil excavation Work shall be performed as part of Below Grade Demolition, the final rough grades will be topographically different than the approximate elevations of the existing ground surface due to the net export of soil and other wastes from the Site. Restricted and Unrestricted recycled crushed concrete aggregates shall be used as backfill, in conjunction with existing soil to grade the Site as indicated in the Drawings.
 11. All Work activities described in the Contract Documents shall be performed in compliance with applicable sections of California Code of Regulations (CCR) Industrial Safety Orders (Title 8), as well as federal and state Occupational Safety Health Administration (OSHA) regulations and Rio Tinto Health, Safety & Environment (HSE) Performance Standards identified in Section 01900 – Health and Safety Requirements. Prior to beginning field activities, a Site-specific Health and Safety Plan (HASP) will be prepared. A full-time, project-dedicated Site Safety Supervisor (SSS) working under the direct oversight of a Certified Industrial Hygienist (CIH) will be present on-Site to conduct and or supervise worker and perimeter air and dust monitoring during Below Grade Demolition Work. In addition, the SSS will monitor Site Work to verify compliance with applicable health, safety, and environmental regulations and permit requirements.
 12. All surveying as specified in the Contract Documents.

1.07 FORM OF SPECIFICATIONS

The Work is shown on the Drawings and is further defined in the Specifications herein. Minor and related Work not described or shown, but necessary to the completion of the Work in all respects shall be the responsibility of CONTRACTOR and performed at no additional cost to OWNER or cause of any delay to the Work.

1.08 CONTRACTS

Perform Work under a single Contract with OWNER.

1.09 MILESTONES (WORK SEQUENCE)

- A. CONTRACTOR shall perform Work in phases to accommodate traffic control, deeper remediation to be performed by others, and proposed Site redevelopment requirements. Project phasing is shown on the Drawings. CONTRACTOR shall coordinate the Construction Progress Schedule and operations with ENGINEER as described in Section 01330. CONTRACTOR shall:
1. Upon Notice to Proceed (NTP) CONTRACTOR shall prepare required submittals and submit to ENGINEER for review and or acceptance within 12 calendar days. CONTRACTOR shall also initiate any necessary project permit applications.
 2. Mobilize and begin Work within 30 calendar days of receiving NTP and implement all requirements of Section 01500. Except where otherwise approved, no demolition or remediation is to take place without a directive from both the City of Vernon Health & Environmental Control (H&EC) and the State of California Department of Toxics Substance Control (DTSC). No demolition or remediation is to take place in PCB-impacted areas without approval from the United States Environmental Protection Agency (U.S. EPA), or as directed by ENGINEER.
 3. Initiate and perform removal, direct-loading and off-site disposal of TSCA-regulated PCB-impacted concrete present in certain Phase areas as defined in the Contract Documents for concrete that contains PCB concentrations that exceed the risk-based remediation level.
 4. Initiate and perform all Work in the Phase I area as defined in the Contract Documents. Phase I Work includes all Below Grade Demolition and Soil Excavation Work in the former building footprint areas located north of the Column 21 Demarcation Line. Upon completion of slab and pavement demolition and removal in Phase I, CONTRACTOR is allowed to continue with slab and pavement demolition and removal in Phase II areas, and subsequent Phase III and Phase V areas. Upon completion of foundation and footing demolition and removal in the Phase I area, CONTRACTOR is allowed to continue with foundation and footing demolition and removal in Phase II areas, and subsequent Phase III areas. CONTRACTOR shall complete all Work in the Phase I area, excluding Backfilling and Grading, within 40 calendar days after Mobilization. Installation of soil vapor extraction systems in the Phase I area will be competitively bid by OWNER. Upon CONTRACTOR completion of Backfilling and Grading, deeper soil vapor extraction remediation system well installation will then be installed in the Phase I area by others.

5. Perform all Work in the Phase II area as defined in the Contract Documents. Phase II Work includes all Below Grade Demolition and Soil Excavation Work in the former building footprint areas located north of the Column 46 Demarcation Line up to the Phase I southern boundary. CONTRACTOR shall complete all Work in the Phase II area, except backfilling and Grading, within 90 calendar days after Mobilization.
6. Perform all Work in the Phase III area as defined in the Contract Documents. Phase III includes the southwest portion of the Site south of former Building 104 and west of former Building 112A, in the vicinity of the former Cooling Tower and Hot Well.
7. Perform all Work in the Phase V area as defined in the Contract Documents. Phase V includes the Parcel 6 area located south of the railroad tracks.
8. No Below Grade Demolition or Soil Excavation Work shall be performed in the Phase IV area until after completion of two months operation of soil vapor extraction remediation activities in the Stoddard solvent-impacted areas. Installation of soil vapor extraction and bioventing systems in the Stoddard solvent-impacted areas will be competitively bid by OWNER, and bioventing require up to three years to reach completion. Upon completion of two months of soil vapor extraction operations, Below Grade Demolition and Soil Excavation Work shall then be performed in the Phase IV area in a manner consistent with the requirements for similar work in adjacent areas of the Site as described in these Contract Documents. Upon CONTRACTOR'S completion of the demolition and grading work in Phase IV, additional wells will be installed in the Phase IV area by others as related to the longer term bioventing system operations.
9. Below Grade Demolition and Soil Excavation Work shall be performed in the Phase VI area as defined in the Contract Documents.
10. Perform all remaining Work in other areas of the Site as defined in the Contract Documents.
11. Complete all Below Grade Demolition Work within 120 calendar days of Mobilization.

1.10 MEANS AND METHODS

- A. Means and methods of Work performance shall be such as CONTRACTOR may choose; subject, however, to Laws and Regulations and ENGINEER'S and OWNER'S right to reject means and methods proposed which:
 1. Will not produce finished Work in accordance with the terms of the Contract.
 2. Are contrary to specific means or method included in the Contract.

- B. The right to reject means and methods of a CONTRACTOR shall not be construed or interpreted as acceptance or control of means and methods by ENGINEER.
- C. ENGINEER'S or OWNER'S approval or failure to expedite the right to reject means and methods shall not relieve CONTRACTOR of his obligation to complete the Work required by the Contract.
- D. Total responsibility for control of all means and methods lies with CONTRACTOR for all Work for which it is responsible.

1.11 SUBCONTRACTORS

CONTRACTOR shall not award any Work to any Subcontractor without prior written approval of OWNER.

1.12 PROJECT MEETINGS

Pre-Construction Meeting: After award of Contract, at a time designated by OWNER or ENGINEER, CONTRACTOR shall attend a Pre-Construction Meeting. Procedures to be followed, critical work sequencing, submittals, coordination efforts, Contract payments, and similar matters will be reviewed.

Progress Meetings: During construction, periodic Site meetings will be held with CONTRACTOR, major Subcontractors, OWNER, and ENGINEER. These meetings will be held weekly (unless job conditions do not warrant) and may be held more frequently if job progress and needs indicate. CONTRACTOR and major Subcontractors shall have one or more responsible representatives in attendance. CONTRACTOR shall submit a Progress Report to ENGINEER at least one working day prior to the Progress Meeting. The Progress Report shall be completed by CONTRACTOR as specified in Section 01275.

1.13 SPECIAL CONDITIONS

- A. Upon execution of the Agreement, CONTRACTOR acknowledges full understanding of the nature and location of the Work, the general and local conditions, particularly those bearing upon availability of labor, water, electric power, roads, uncertainties of weather or similar physical conditions at the Site, the conformation and conditions of the subsurface features due to historic activities, groundwater conditions, the character of equipment and facilities needed preliminary to and during the prosecution of the Work, and all other matters which can in any way affect the Work or the cost thereof under this Contract.
- B. CONTRACTOR further acknowledges satisfaction as to character, quality and quantity of surface and subsurface materials to be encountered from its inspection of the Site and from reviewing records of exploratory Work made available by OWNER. Failure by CONTRACTOR to become acquainted with the physical conditions of the Site and all

the available information will not relieve CONTRACTOR from responsibility for properly estimating the difficulty or cost of successfully performing the Work.

Information is available regarding the locations and concentrations of COPCs detected at the Site. Copies of the document will be made available to bidders for their review. Failure by CONTRACTOR to become acquainted with all the available information will not relieve CONTRACTOR from responsibility for properly estimating the difficulty or cost of successfully performing the Work. In the event of a conflict between information in the reference documents listed below and the Specifications and Drawings, the Specifications and Drawings shall govern. The documents that will be provided include the following:

1. Phase II Environmental Site Assessment Report, Pechiney Cast Plate Facility, Vernon, California, March 9, 2006; Geomatrix Consultants, Inc;
2. Supplemental Phase II Environmental Site Assessment Report, Pechiney Cast Plate Facility, Vernon, California, December 19, 2006; Geomatrix Consultants, Inc;
3. Feasibility Study, Former Pechiney Cast Plate, Inc., Facility, Vernon, California, May 7, 2012; AMEC Environment & Infrastructure;
4. Remedial Action Plan, Former Pechiney Cast Plate, Inc., Facility, Vernon, California, May 7, 2012; AMEC Environment & Infrastructure;
5. Hazardous Materials Transportation Plan, Polychlorinated Biphenyls Soil and Concrete, Former Pechiney Cast Plate, Inc. Facility, Vernon, California; November 4, 2010, Revised April 12, 2012; AMEC Environment & Infrastructure; and
6. Historical Facility Drawings.

- C. CONTRACTOR warrants that as a result of examination and investigation of all the aforesaid data, CONTRACTOR can perform the Work in a professional and workmanlike manner and to the satisfaction of OWNER. OWNER assumes no responsibility for any representations made by any of its officers or agents during or prior to the execution of this Contract, unless (1) such representations are expressly stated in the Contract and (2) the Contract expressly provides that the responsibility is assumed by OWNER.

1.14 CONTRACTOR'S ACCESS AND USE OF SITE

- A. Allowable Site working hours for performing Work: 6:00 A.M. to 6:00 P.M. on weekdays unless otherwise approved by OWNER or ENGINEER. CONTRACTOR shall notify ENGINEER of any anticipated weekend Work one week in advance. Weekend Work must be approved by ENGINEER.

- B. CONTRACTOR shall allow OWNER, ENGINEER, and regulatory agency personnel access to the Site at all times.
- C. CONTRACTOR shall keep Site free from accumulation of surplus materials and rubbish resulting from the Work.
- D. CONTRACTOR shall take all steps necessary to avoid depositing debris and mud on roads and streets adjoining, or on the Site, from vehicles and equipment operating to and from the construction Site during the Work. CONTRACTOR shall also be responsible for removal of such debris by brooming and washing on a daily basis and additionally, immediately upon notice by ENGINEER or governmental authorities.
- E. CONTRACTOR'S failure to comply with these requirements within 2 hours after being given notice by ENGINEER or governmental agency, will result in OWNER having the streets cleaned and deducting the costs of such cleaning from the amount due to CONTRACTOR.

1.15 WORK PERFORMED BY OTHERS

- A. CONTRACTOR shall coordinate the progress of their Work with that being performed by others in areas where common usage of roads or other areas of the Site is required. CONTRACTOR shall allow reasonable access and implementation of deeper soil remediation activities by others as described in Part 1.09 Milestones (Work Sequence). Deeper soil remediation Work will include installation and operation of a soil vapor extraction (SVE) system in the Phase I area of the Site and a SVE and Bioventing system in the Phase III/IV areas of the Site.
- B. ENGINEER will operate a temporary on-Site SVE system located in the Phase III/IV areas of the Site.
- C. CONTRACTOR shall provide access for the ENGINEER'S surveyor to enter active Work zones to survey and record ENGINEER'S soil sample locations.
- D. CONTRACTOR shall provide access for the ENGINEER'S concrete coring subcontractor to enter active Work zones to assist ENGINEER in collection of concrete core samples.

1.16 PERMITS AND NOTIFICATIONS

All project permits and notifications are the responsibility of the CONTRACTOR. The known permits and notifications for this project include:

Permit/Submittal	Agency
Demolition Permit	City of Vernon

Permit/Submittal	Agency
Permit to Disconnect/Terminate Utilities (Fire Service, Electrical, Sewer, Storm Drain etc.)	City of Vernon and other Utility Agencies
Demolition Permit and 10-day Notification	SCAQMD and City of Vernon
Rule 403 and 404 Permit and Notifications	SCAQMD and City of Vernon
Demolition Permit	California – Occupational Safety and Health Administration (Cal-OSHA)
Excavation Permit (Include Shoring Plans)	California – Occupational Safety and Health Administration (Cal-OSHA)
Grading Permit (Include Shoring Plans)	City of Vernon
Notice of Intent (NOI) – A NOI was issued for the site and is to be maintained by the CONTRACTOR	State of California and City of Vernon
Storm Water Pollution Prevention Plan	State of California and City of Vernon
Permit to Crush Concrete	SCAQMD and City of Vernon
Permit to use Fire Hydrant Water	City of Vernon
Permit to use crushed concrete as backfill	City of Vernon
Final Grading Plan and Standard Urban Storm Water Mitigation Plan	State of California and City of Vernon
Traffic Control (Detour) Plan (if needed)	City of Vernon
Encroachment Permit (if needed)	City of Vernon
Permit to Work Near Railroad	Railroad Owner
Transportation Plan (if needed)	California Highway Patrol (CHP)
Certificate of Closure	City of Vernon

1.17 UTILITIES

Utilities comprised of electricity and natural gas associated with previous operations at the Site, have been disconnected. Remaining utilities include sanitary sewers, certain storm drains, and potable water available from adjacent hydrants.

1.18 SCHEDULE

Below Grade Work as described in these documents is anticipated to start in the field during July 2012, and, including Below Grade Demolition Work in the Phase IV area, must be completed by January 31, 2013.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

PART 4 – PAYMENT

There shall be no separate payment for CONTRACTOR or Subcontractor incidentals pursuant to implementation and compliance with the requirements of this Section. Full compensation for all CONTRACTOR implementation and compliance with this Section under this Contract shall be considered as included in the Contract unit or lump sum prices for the various items of the Contract to which the requirements of this Section relate.

END OF SECTION

SECTION 01275**MEASUREMENT AND PAYMENT****PART 1 – GENERAL****1.01 SCOPE**

The Contract pay items described in this Section refer to the pay items listed on the Bid Form. They constitute all pay items for completion of the Work. No separate payment will be made for miscellaneous, temporary, or accessory Work such as, jobs signs, sanitary requirements, testing, safety devices, water supplies, power, watchmen, bonds, and insurance. Compensation for all such services, items and materials shall be included in the lump sum amounts and unit prices for the pay items listed on the Bid Form.

Payment includes full compensation for all required labor, product, tools, equipment, services and incidentals to complete the Work, including overhead and profit. Invoices submitted for payment shall include all applicable line items on the Bid Form originally submitted for the Work that have been completed to date.

1.02 RELATED REQUIREMENTS

- A. The Drawings, the provisions of the Contract including the General and Supplementary Conditions and the General Requirements apply to the Work of this Section.
- B. Section 01290 – Schedule of Values

1.03 DEFECT ASSESSMENT AND NON-PAYMENT FOR REJECTED PRODUCTS

- A. CONTRACTOR shall replace portions of the Work that do not conform to specified requirements as determined by ENGINEER.
- B. If, in the opinion of ENGINEER, it is not practical to remove and replace the Work, ENGINEER will direct one of the following remedies:
 - 1. The defective Work may remain, but the price for the associated task will be adjusted.
 - 2. The defective Work will be partially repaired in accordance with ENGINEER'S instructions to the satisfaction of ENGINEER, and the price will be adjusted.
- C. Payment will not be made for any of the following:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement by reason of failure of the CONTRACTOR to conform to the provisions of the Contract Documents.

3. Products placed beyond or outside the lines and levels of the required Work as indicated on the Drawings or established by the ENGINEER.
4. Products remaining on hand after completion of the Work.
5. Loading, hauling, and disposing of rejected products.
6. Products not completely unloaded from the transporting vehicle.
7. Work or material payment for which is contrary to the provisions of the Contract Documents.

1.04 FORMAT AND PREPARATION OF PAYMENT APPLICATIONS

- A. CONTRACTOR shall submit typed applications for payment as described in the “Agreement Between Owner and Contractor For Construction Contract,” (Agreement) and the “Standard General Conditions of the Construction Contract,” (General Conditions).
- B. CONTRACTOR shall execute application for payment by signature of authorized officer.
- C. CONTRACTOR shall use line items from the approved Bid Form (Unit Price Schedule). Provide dollar value in each column for each line item for portion of Work performed.
- D. CONTRACTOR shall list each authorized Contract Change as an extension on a continuation sheet, listing the Contract Change number and dollar amount as referenced against original item of Work.

1.05 SUBMITTAL PROCEDURES AND SUBSTANTIATING INFORMATION

- A. CONTRACTOR shall submit one electronic copy and one hard copy of each Application for Payment to ENGINEER.
- B. Payment Period: Submit Application for Payment at intervals in accordance with the Contract Documents.
- C. Application for Payment shall be accompanied with any additional administrative submittals required by these Contract Documents.
- D. Progress Reports shall be submitted with each Application for Payment that details the activities at the Site. ENGINEER will provide CONTRACTOR the format of the Progress Report prior to initiating any field activities. The proposed Progress Report shall detail work completed within each phase area, and shall segregate specific work completed as PCB or Non-PCB related. The Progress Report shall be reviewed and approved by OWNER prior to the submittal of any Application for Payment. Progress

Reports shall be generated by CONTRACTOR and submitted to ENGINEER on a weekly basis.

- E. When OWNER or ENGINEER requires substantiating information, CONTRACTOR shall submit data justifying dollar amounts in question.
- F. CONTRACTOR shall provide one copy of data with cover letter for each copy of submittal and show Application for Payment number and date, and line item by number and description.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 MEASUREMENT FOR PAYMENT

Weights will be determined by certified weight certificates from source/disposal facilities of each truck that enters/leaves the Site. CONTRACTOR shall be responsible for promptly submitting all weight certificates to ENGINEER. CONTRACTOR is responsible for collecting and providing all weight certificates and TSDf-signed copies of hazardous waste manifests to the ENGINEER. OWNER will not pay for wastes for which a valid weight ticket or TSDf-signed manifest copy is not received.

Weighing Equipment scales for the weighing of natural, manufactured or processed demolition and construction materials which are required to be proportioned or measured or paid for by weight, shall be furnished, erected, and maintained by the CONTRACTOR, or be certified, permanently installed commercial scales. CONTRACTOR Weighing Equipment scale shall conform with the California Code of Regulations, Title 4, Division 9, Section 2.21 for Belt Conveyor Scale Systems.

In the event CONTRACTOR elects to ship waste, debris or salvage material by rail, which disposal has been bid on a unit price basis, by weight, a Weigh Ticket from a public, certified railroad scale maintained by the carrier railroad shall be adequate measurement and proof of weight for purposes of payment.

Volume measurements for soil excavation shall be measured by the cubic yard (CY) as calculated in the stockpile location. In computing volumes of excavation the method used will be the average end-area method, or as stated in the appropriate Sections of the specifications.

Square footage of pavements, square footage of exposed face of shoring or bracing for additional excavation support, surface area in acres and linear feet of piping or other features demolished or decommissioned shall be determined by CONTRACTOR'S and ENGINEER'S joint measurement.

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Items of Work for which payment is made by “Lump Sum” will be measured as a complete unit.

Partial payment, if made, will be made in accordance with the ENGINEER-approved Schedule of Values described in Section 01290 – Schedule of Values.

PART 4 – PAYMENT

There shall be no separate payment for CONTRACTOR or Subcontractor incidentals pursuant to implementation and compliance with the requirements of this Section. Full compensation for all CONTRACTOR implementation and compliance with this Section under this Contract shall be considered as included in the Contract unit or lump sum prices for the various items of the Contract to which the requirements of the Measurement and Payment Section relate.

END OF SECTION

SECTION 01290**SCHEDULE OF VALUES****PART 1 – GENERAL****1.01 SCOPE**

CONTRACTOR shall submit a Schedule of Values for approval by ENGINEER.

1.02 RELATED REQUIREMENTS

- A. The Drawings, the provisions of the Contract including the General Conditions apply to the Work of this Section.

1.03 SUBMITTALS

- A. Schedule of Values: CONTRACTOR shall submit a Schedule of Values to ENGINEER as soon as practicable, and in no event later than 15 calendar days after receiving the Notice to Proceed, or at least 10 calendar days prior to submitting the first application for payment, whichever is sooner. The Schedule of Values shall meet the following requirements:

Content:

1. The Schedule of Values shall provide a detailed breakdown of the Work task and subsequent proposed billing for Bid Items provided in the Bid Form and consistent with Work phasing as presented in CONTRACTOR'S schedule and in the Contract Documents. The sum of costs for line item components of each Bid Item shall equal the Bid Item amount.
2. The value of each major completed item of Work and each subcontracted item of Work shall be listed by CONTRACTOR as a separate line item. All total values are to be rounded to the nearest whole dollar.
3. For each line item which has an installed or completed value of more than \$10,000 break down costs to list major products of components including labor, equipment and materials.
4. Subcontractor schedules of values must also be submitted as applicable.
5. The sum of values listed, based on "primary" unit prices extended, and "lump sum" prices, shall equal the total lump sum price for the Bid Item. The sum of the Bid Item prices shall equal the Contract sum.

Substantiating Data:

1. When requested by OWNER, CONTRACTOR shall submit data justifying the individual Schedule of Values line item amounts in question.

Unit Rates:

1. When requested by OWNER, CONTRACTOR shall submit data justifying the individual Schedule of Values line item amounts in question.
2. CONTRACTOR shall submit hourly rates for laborers and operated and maintained equipment to be used when performing Work that is beyond the scope of these specifications upon written authorization by OWNER or ENGINEER.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

PART 4 – PAYMENT

Schedule of Values will not be measured separately. There shall be no separate payment for CONTRACTOR or Subcontractor incidentals pursuant to implementation and compliance with the requirements of this Section. Full compensation for all CONTRACTOR implementation and compliance with this Section under this Contract shall be considered as included in the Contract unit or lump sum prices for the various items of the Contract to which the requirements of the Schedule of Values Section relate.

END OF SECTION

SECTION 01330**SUBMITTALS AND PROCEDURES****PART 1 – GENERAL****1.01 SECTION INCLUDES**

This Section provides a list of Submittals required under this Contract. This Section also provides a schedule for CONTRACTOR'S submittal of these documents to ENGINEER.

1.02 RELATED REQUIREMENTS

- A. The Drawings, the provisions of the Contract including the General Conditions and the General Requirements apply to the Work of this Section.
- B. Section 01290 – Schedule of Values
- C. Section 01502 – Storm Water Management
- D. Section 01550 – Traffic Control
- E. Section 01900 – Health and Safety Requirements
- F. Section 02114 – Soil and Waste Stockpiling
- G. Section 02120 – Off-Site Transportation and Disposal
- H. Section 02260 – Excavation Support and Protection

1.03 SUBMITTAL PROCEDURES

- A. Within 15 calendar days of the date of commencement as stated in the Notice to Proceed, CONTRACTOR shall prepare and submit all documents as required in this Section. These documents include, but are not limited to: CONTRACTOR plans, Critical Path Method (CPM) progress schedule, Schedule of Values, product information, shop drawings, dimensional data, manufacturer's instructions, and proposed off-Site disposal facilities.
- B. For each submittal, CONTRACTOR shall state the project name, Subcontractor or supplier; clearly reference relevant and pertinent specification Section number, Construction Drawing and detail number(s), as appropriate.
- C. CONTRACTOR shall schedule Submittals to expedite the project, and submit three copies to the ENGINEER, and one copy to the OWNER. CONTRACTOR shall also coordinate submission of related items.

- D. ENGINEER will review CONTRACTOR Submittals and provide written comments to CONTRACTOR within 7 calendar days.
- E. CONTRACTOR shall revise and resubmit Submittals within 5 calendar days, as required by ENGINEER or OWNER review, and identify all changes made since previous submittal.
- F. CONTRACTOR will not be allowed to mobilize and begin actual fieldwork until all applicable Submittals have been received, reviewed and or accepted by ENGINEER. Except where otherwise approved, no demolition or remediation is to take place without a directive from both the City of Vernon Health & Environmental Control (H&EC) and the State of California Department of Toxic Substances Control (DTSC). No demolition or remediation is to take place in PCB-impacted areas without approval from United States Environmental Protection Agency (U.S. EPA), or as directed by ENGINEER. ENGINEER may withhold CONTRACTOR invoice approval until all CONTRACTOR Submittals are complete.
- G. CONTRACTOR shall distribute copies of reviewed and accepted Submittals to concerned parties and instruct parties to promptly report any inability to comply with provision.

1.04 REQUIRED SUBMITTALS

- A. CONTRACTOR shall prepare the following items and submit them to ENGINEER for review or acceptance:
 - 1. Construction CPM Progress Schedule (see Part 1.05 of this Section)
 - 2. Proposed Products List (see Part 1.06 of this Section)
 - 3. Proposed Materials List (see Part 1.07 of this Section)
 - 4. Schedule of Values (see Section 01290 – Schedule of Values)
 - 5. A Construction Plan within a three-ring binder that includes specific Sections, components or attachments that address the following Work-related issues:
 - a. Work Plan that describes in text format the CONTRACTOR’S methods and means for executing each phase, general Work sequencing, and major components of Work
 - b. A Site-specific Health and Safety Plan (see Section 01900 – Health and Safety Requirements)
 - c. A Stormwater Pollution Prevention Plan (SWPPP) (see Section 01502 - Storm Water Management)

- d. Decontamination Plan (See Section 01500 – Temporary Facilities and Site Controls)
 - e. Excavation Protection Plan (see Section 02260 – Excavation Support and Protection)
 - f. Traffic Control Plan (see Section 01550 – Traffic Control)
 - g. Soil Loading and Disposal Plan (see Section 02120 – Off-Site Transportation and Disposal)
6. A list of all permits and licenses CONTRACTOR shall obtain indicating the agency required to grant the permit and the expected date of submittal for the permit application and required date for receipt of the executed permit.
- B. Additional Submittals as required in the Contract Documents.

1.05 CONSTRUCTION CPM PROGRESS SCHEDULE

- A. CONTRACTOR shall submit initial CPM progress schedule in accordance with Part 1.04 of this Section. The Progress schedule shall be a bar graph (Gantt chart) with linked tasks and a clearly indicated critical path.
- B. CONTRACTOR shall revise and resubmit the progress schedule to ENGINEER on a bi-weekly basis, and as required by ENGINEER.
- C. The progress schedule shall show the proposed order of Work with a complete sequence of construction by activity, identifying Work of separate phases/stages, and other logically grouped activities. Progress schedule shall include beginning and completion dates for salient Work features and other milestones, predecessor(s) for each item, and the duration of each item with percent complete.
- D. The progress schedule shall identify permits and approval that are the responsibility of the CONTRACTOR.
- E. The progress schedule shall clearly indicate items or tasks that require OWNER or ENGINEER responses or input, or any other Work to be performed by OWNER or ENGINEER, necessary for CONTRACTOR to maintain schedule.
- F. CONTRACTOR shall consider normal calendar year, holidays, weather delays, long lead items, review times, project phasing, project Site conditions and geometry, and space availability in preparing the progress schedule.
- G. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates.

1.06 PROPOSED PRODUCTS LIST

- A. CONTRACTOR shall submit a complete list of major products proposed for use including health and safety related personal protective equipment, air monitoring equipment, stormwater control products, geotextile fabrics, polyethylene sheeting or tarps for covering stockpiles, dust control products or related equipment, and all products that will be utilized for traffic control and Site security with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.07 PROPOSED MATERIALS LIST

CONTRACTOR shall submit complete list of materials proposed for use, including stormwater control materials, import granular fill materials with name and address of supplier, material specification sheet, and reference standards.

1.08 PRODUCT DATA

- A. Submit two copies to be retained by ENGINEER.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data shall provide information unique to this Work.
- C. After review, distribute in accordance with Part 1.03 above.

1.09 MANUFACTURER'S INSTRUCTIONS

- A. CONTRACTOR shall submit manufacturer's printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for product data.
- B. Any conflicts between manufacturer's instructions and Contract Documents shall be identified by CONTRACTOR.

1.10 MANIFESTS AND DISPOSAL OF HAZARDOUS AND NON-HARZARDOUS MATERIAL

CONTRACTOR shall submit copies of all manifests and records for disposal of any hazardous and non-hazardous materials in accordance with Section 02120 - Off-Site Transportation and Disposal.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

PART 4 – PAYMENT

Submittals and Procedures will not be measured separately. Full compensation for all CONTRACTOR implementation and compliance with this Section shall be considered incidental and included in the Contract lump sum price for Mobilization and Demobilization.

END OF SECTION

SECTION 01500**TEMPORARY FACILITIES AND SITE CONTROLS****PART 1 – GENERAL****1.01 SCOPE**

This Section describes temporary facilities and controls that shall be provided by CONTRACTOR during performance of the Work.

1.02 RELATED REQUIREMENTS

- A. The Drawings, the provisions of the Contract including the Agreement and General Conditions apply to the Work of this Section.
- B. Section 01330 – Submittals and Procedures
- C. Section 01502 – Storm Water Management
- D. Section 01550 – Traffic Control
- E. Section 01900 – Health and Safety Requirements

1.03 SUBMITTALS

- A. In accordance with Section 01330 – Submittals and Procedures.
- B. CONTRACTOR shall submit to ENGINEER and OWNER, within the Construction Work Plan (Section 01330), the sequence of this Work, describing how equipment, vehicles, and personnel decontamination procedures will be implemented. Include design to contain and collect equipment washdown water, cleaners, and solvents. Personnel decontamination procedures shall also be outlined in the CONTRACTOR Health and Safety Plan (HASP).

1.04 ACCESS AND DRAINAGE

- A. CONTRACTOR shall keep all natural drainage and water courses unobstructed or provide equal courses effectively placed, and prevent accumulations of surface water. CONTRACTOR shall construct grade and stabilize access roads, and provide temporary mobilization, parking, and storage areas for its use during construction within the areas shown on the Drawings or as approved by OWNER.
- B. CONTRACTOR shall provide water management in accordance with Section 01502 – Storm Water Management.

- C. CONTRACTOR shall maintain Site access, parking, and storage areas in stable and smooth condition throughout the duration of the Work. Traffic control measures shall be provided in accordance with Section 1550 – Traffic Control.

1.05 TEMPORARY SANITARY FACILITIES

- A. CONTRACTOR shall furnish and maintain the necessary temporary self-contained sanitary facilities in accordance with all applicable regulations. CONTRACTOR shall not locate any temporary self-contained sanitary facilities within 200 feet of the eastern property boundary. The use of these facilities shall be available for use by CONTRACTOR'S employees as well as ENGINEER'S representatives and other project personnel on the Site.
- B. CONTRACTOR shall furnish and maintain hand washing facilities for all Site personnel for the duration of the Work. Hand washing facilities shall be provided with running water.

1.06 CONTRACTOR STORAGE AREA

A storage area will be designated by OWNER or ENGINEER on the project Site for use by CONTRACTOR for storage of materials, tools, equipment, office, and other items necessary for construction. The exact limits of the storage area will be designated in the field by ENGINEER. CONTRACTOR shall be fully responsible for the preparation of this area, its maintenance, and its security, including fencing, watchmen, or other means of security. Under no circumstances will OWNER or ENGINEER be responsible for the security of any property belonging to CONTRACTOR, its Subcontractors, or any of its Work forces.

1.07 STAGING AREAS, STORAGE AND FIELD OFFICES

CONTRACTOR may, during the course of this project, stage construction, storage materials, or erect a temporary field office only within the CONTRACTOR'S Staging Area or as otherwise approved by ENGINEER.

1.08 DECONTAMINATION AND CARE OF WATER

- A. CONTRACTOR shall furnish all labor, materials, supplies and equipment necessary for decontamination of equipment and for collection and temporary storage of decontamination washdown water, cleaners, and solvents generated during decontamination procedures.
- B. All water used by CONTRACTOR during the project shall be obtained by CONTRACTOR from fire hydrants located within or near the Limits of Work shown on the Drawings. CONTRACTOR shall be responsible for obtaining prior written approval from OWNER and/or adjacent landowners as necessary, and for paying all fees related to fire hydrant connections and water usage during the project.

- C. CONTRACTOR shall follow and implement the decontamination specifications outlined in this, and related, Sections and the CONTRACTOR'S Construction Plan and HASP, including those defined for PCBs in 40 CFR 761 Subpart S.

1.09 EQUIPMENT AND PERSONNEL DECONTAMINATION

- A. CONTRACTOR shall establish decontamination area(s) for decontamination of all equipment and vehicles which contact Site soils and concrete surfaces. CONTRACTOR shall establish a separate decontamination facility for equipment a vehicles which contact PCB containing materials. CONTRACTOR shall insure that any equipment, vehicles, and personnel that have been in contact with Site soils and concrete surfaces are properly decontaminated, before leaving the Work area. CONTRACTOR shall identify decontamination areas and procedures for personnel and equipment decontamination in their Construction Plan.
- B. CONTRACTOR may use brushing, vacuuming, steam cleaning, pressure washing, or equivalent methods for decontaminating vehicles and equipment. CONTRACTOR shall follow double wash/rinse methods for decontaminating all vehicles and equipment which come into contact with PCB containing materials. Steam cleaning may be required by ENGINEER, depending on the equipment condition.
- C. CONTRACTOR shall pay all costs related to decontamination of CONTRACTOR'S equipment including disassembly, removal and off-Site disposal of the decontamination pad.
- D. CONTRACTOR shall obtain all wash water needed for decontamination of equipment and personnel from a potable water source. Cleaners and solvents needed for decontamination of equipment and vehicles which have come into contact with PCB containing surfaces shall be provided at the sole expense of the CONTRACTOR. Disposal of decontamination water shall be performed at CONTRACTOR'S expense.
- E. CONTRACTOR shall perform decontamination in a manner that meets the requirements of Section 01502 – Storm Water Management, Section 01900 – Health and Safety Requirements, and CONTRACTOR'S HASP and Construction Plan.

1.10 PROGRESS CLEANING AND DISPOSAL OF EXCESS SOLID WASTE

CONTRACTOR shall maintain Site in clean and orderly condition free of waste materials, debris, and rubbish. CONTRACTOR shall not locate any solid waste containers or bins within 200 feet of the eastern property boundary. CONTRACTOR shall collect, transport, and dispose of all collected solid wastes generated from their operations in accordance with applicable federal and State of California Solid Waste Disposal regulations at their own expense.

1.11 TEMPORARY ELECTRICAL POWER

CONTRACTOR is responsible to provide temporary power for their purposes. CONTRACTOR shall coordinate and arrange with local power company to provide the necessary power supply, or alternatively, provide for its own power using portable generators as required to complete the Work. CONTRACTOR shall be responsible for all temporary power costs.

1.12 TEMPORARY TELEPHONE SERVICE

CONTRACTOR is responsible to provide the necessary telephone services for CONTRACTOR purposes at no cost to OWNER or ENGINEER.

1.13 TEMPORARY FIELD OFFICES AND SHEDS

CONTRACTOR is responsible to provide the necessary temporary office and storage sheds for CONTRACTOR'S use for the duration of the project.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

PART 4 – PAYMENT

Temporary Facilities and Controls will not be measured separately. Full compensation for all CONTRACTOR implementation and compliance with this Section shall be considered incidental and included in the Contract lump sum price for Mobilization and Demobilization.

END OF SECTION

SECTION 01501**DUST CONTROL****PART 1 – GENERAL****1.01 DEFINITIONS**

Dust shall mean airborne particulates of silica or fugitive dust that are associated with or resulting from CONTRACTOR'S activities. Of particular concern, includes but is not limited to, dust associated with CONTRACTOR'S demolition and crushing activities, excavation, backfilling and loading activities, truck traffic onto and off of the Site, and ambient wind traversing active work areas or excavated soil or open excavations.

1.02 RELATED REQUIREMENTS

- A. The Drawings, the provisions of the Contract including the General Conditions and the General Requirements apply to the Work of this Section.
- B. Section 01330 – Submittals and Procedures
- C. Section 01502 – Storm Water Management
- D. Section 02114 - Soil and Waste Stockpiling

1.03 MINIMUM REQUIREMENTS

This Section includes specifications for CONTRACTOR'S responsibility to manage fugitive and silica dust and implementation of odor controls when applicable or as directed by ENGINEER. CONTRACTOR is responsible to comply with all local, regional, state, and federal requirements and regulations related to control of fugitive and silica dust and on Site odors.

To prevent the formation of dust, CONTRACTOR, at a minimum, shall be required to:

- A. Furnish all labor, materials, facilities, equipment, services, employee training and testing, and agreements necessary to perform the Work required for fugitive dust and potential silica-generating construction dust control activities in accordance with these specifications, Health and Safety Plan, Rio Tinto Health, Safety & Environment (HSE) requirements, the latest regulations, and South Coast Air Quality Management District (SCAQMD) requirements. Whenever there is a conflict or overlap of the above references, the most stringent provisions are applicable.
- B. In all cases where potential silica dust or chemical or biological odor exposures may occur, the CONTRACTOR shall use any and all feasible engineering and work practice controls to reduce and maintain employee exposure levels to or below the Permissible Exposure Level (PEL). It shall be assumed that the workers generating the silica dust or

odors are exposed above the PEL until the CONTRACTOR air monitoring demonstrates the levels are below the PEL through personal sampling.

- C. If visible fugitive dust emissions or respirable crystalline silica dust concentrations exceed 0.05 milligrams per cubic meter (mg/m^3) beyond the perimeter of the work area, CONTRACTOR shall immediately stop work. CONTRACTOR shall perform all necessary corrective actions to eliminate visible dust and reduce respirable crystalline silica concentrations to less than 0.05 mg/m^3 before resuming work.
- D. Keep vehicle speeds on the property below 5 miles per hour.
- E. Mist or spray water, excluding PCB-impacted soil and concrete areas, while performing any dust or odor generating activities. Water used for dust or odor suppression shall be potable water, or other acceptable water sources as defined in Section 01502 – Storm Water Management.
- F. CONTRACTOR shall not use decontamination wash water for dust or odor control measures unless water has been treated to remove any Site COPCs that may be present.
- G. Control excavation and concrete removal activities to minimize dust or odor generation.
- H. Keep the drop heights to a minimum, while handling materials or loading transportation vehicles.
- I. Cover soil stockpiles as specified in Section 02114 - Soil and Waste Stockpiling.
- J. Have a water supply available continuously.
- K. Under no circumstances shall water be used to control dust and odors within PCB-impacted soil and concrete areas of the Site. Within these areas, CONTRACTOR shall use only ENGINEER-approved dust and odor control methods and means. CONTRACTOR shall submit to ENGINEER proposed methods and means for dust and odor control within PCB-impacted areas in CONTRACTOR's Work Plan.

1.04 SUBMITTALS

Provide description of proposed work practices for Dust Control in the CONTRACTOR Work Plan. Provide safety and monitoring measures in the Site-Specific Health and Safety Plan. Submit to Engineer for review and acceptance in accordance with Section 01330 – Submittals and Procedures.

1.05 CONTINGENCY REQUIREMENTS

If visible dust or noticeable odors are observed by CONTRACTOR, ENGINEER, OWNER, or regulatory agencies, CONTRACTOR shall perform the following:

- A. Increase the magnitude of dust or odor control measures.
- B. Increase the frequency of implementation of dust or odor control measures.
- C. Decrease the rate of work production that is responsible for the dust or odor generating activities.

These contingency measures shall be performed at no additional cost to OWNER and CONTRACTOR shall include appropriate contingency funds in CONTRACTOR'S bid to cover such contingency measures.

1.06 EXCESSIVE WATERING

Except as required by ENGINEER, CONTRACTOR shall not employ dust or odor control methods which result in ponding, or surface erosion.

1.07 CONTRACTOR'S RESPONSIBILITY

Effective control of dust and odors is of paramount importance for protection of workers on the Site, for protection of the public, and for compliance with Laws and Regulations. During the performance of all Work, CONTRACTOR shall employ conscientious and effective means of dust and odor control. CONTRACTOR shall assume responsibility for all damages, delays, government-imposed penalties or fines, and claims which result from CONTRACTOR'S negligent dust and odor control practices. ENGINEER will stop Work at any time if CONTRACTOR dust and/or odor control methods are deemed inadequate or in-effective by ENGINEER, OWNER, or regulatory agencies. Any costs associated with the stoppage of Work due to inadequate or in-effective dust and/or odor control measures shall be the sole expense of CONTRACTOR.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 WET METHOD

- A. Use “wet” systems that eliminate or reduce dust generated by CONTRACTOR’S activities.
- B. Apply adequate water during concrete crushing and removal and stockpile management so to prevent visible dust emissions from leaving the Site boundary.

PART 4 – PAYMENT

Dust Control will not be measured separately. There shall be no separate payment for CONTRACTOR or Subcontractor incidentals pursuant to implementation and compliance with the requirements of this Section. Full compensation for all CONTRACTOR implementation and compliance with this Section under this Contract shall be considered as included in the Contract unit or lump sum prices for the various items of the Contract to which the requirements of this Section relate.

END OF SECTION

SECTION 01502**STORM WATER MANAGEMENT****PART 1 – GENERAL****1.01 SCOPE**

Work under this Section includes preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) prepared by the CONTRACTOR. CONTRACTOR shall be responsible for the management and control of all storm water, rainfall, potable water discharges, and Contact Water at the Site during the performance of Below Grade Demolition and Soil Excavation Work. The CONTRACTOR'S SWPPP shall be implemented before, during, and after precipitation events and provide for post-construction storm water pollution controls following completion of Work. CONTRACTOR shall assume responsibility for all notifications, inspections, sampling, cleanup, damages, delays, government-imposed penalties or fines, and claims which result from CONTRACTOR'S non-compliance with their SWPPP, or failure to control storm water, spills, releases, or contact water.

1.02 RELATED REQUIREMENTS

A. Section 01330 – Submittals and Procedures

1.03 DEFINITIONS

Contact Water: Storm water or other potable water supplies that contact soil, slabs or surface pavements known to contain COPCs, and in turn become impacted with COPCs.

Spill or Release: Uncontrolled or unanticipated release of chemicals (liquid or solid), fluids, fuels, oils, or other hazardous or impacted materials, that cannot legally be discharged to the ground surface.

Waters of the State: According to California Water Code §13050(e), "Waters of the State" means any surface water or groundwater, including saline waters, within the boundaries of the state.

Storm Water Management: Structural and non-structural measures provided by CONTRACTOR before, during, and after a rainfall event to minimize rainfall runoff from the Site, prevent on-Site sediment from being carried off-Site, and limit pollutant load to rainfall runoff.

Best Management Practices (BMPs): Includes schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent, eliminate, or reduce the pollution of waters of the receiving waters.

1.04 STORM WATER POLLUTION PREVENTION PLAN

CONTRACTOR shall prepare a Site-specific Storm Water Pollution Prevention Plan (SWPPP) for this project and submit the SWPPP to ENGINEER and the City of Vernon for review and approval in accordance with the Contract Documents. The SWPPP shall describe BMPs that shall be established and maintained by CONTRACTOR during the Work in accordance with City of Vernon requirements, State Water Resources Control Board Storm Water Program 2009-0009-DWQ Construction General Permit (GCP) as applicable (2009-0009-DWQ becomes effective beginning July 1, 2010), California Regional Water Quality Control Board (Los Angeles Region), and Storm Water Pollution Prevention Plan Requirements for Construction Projects.

The CONTRACTOR shall submit a Notice of Intent to obtain coverage under the Construction National Pollutant Discharge Elimination System (NPDES) Storm Water General Permit and prepare the SWPPP in compliance with the General Permit. The CONTRACTOR is responsible for providing qualified persons for the implementation of monitoring and verifying compliance with the SWPPP and the General Permit. The CONTRACTOR shall maintain a copy of the SWPPP and a copy of the CONTRACTOR's training, monitoring, and maintenance records on the Site at all times.

1.05 SPILLS

In the event of a spill in violation of California Fish and Game Code Section 5650, or release of a hazardous substance (as designated in 40 CFR 302), pollutant, contaminant, or oil (as governed by the Oil Pollution Act (OPA), 33 U.S.C. 2701 et seq.), CONTRACTOR shall notify the OWNER immediately. If the spill exceeds the reporting threshold, CONTRACTOR shall follow the pre-established procedures for immediate reporting to the appropriate regulatory agencies. Immediate containment actions shall be taken to minimize the effect of any spill or leak. Clean-up shall be in accordance with applicable federal, state, and local regulations. Additional sampling and testing may be required to verify spills have been cleaned up. Spill clean-up and testing shall be done at the sole expense of the CONTRACTOR.

1.06 SPILL RESPONSE MATERIALS

CONTRACTOR shall provide and maintain on-Site spill response materials including, but not limited to, containers, adsorbent, shovels, and personal protective equipment. Spill response materials shall be available at all times, in close proximity, and at sufficient quantities to handle hazardous materials/wastes that are being handled, stored, or transported. Spill response materials shall be compatible with the type of material being handled.

1.07 PROTECTION OF WATER RESOURCES

- A. CONTRACTOR shall control the disposal and use of chemicals, petroleum products and foreign or hazardous materials, both on and off-Site and shall comply with applicable

federal, state, county and municipal laws concerning pollution of soil, groundwater, rivers, and streams. Special measures shall be taken to prevent chemicals, petroleum products, construction materials, foreign substances, or hazardous materials from entering soil, groundwater, or Waters of the State.

Water used in on-Site material processing, dust and odor control, foundation and concrete clean-up, and other waste waters shall not be allowed to enter Waters of the State.

1.08 EROSION CONTROL

- A. Surface drainage from cuts and fills within the construction limits, whether or not completed, shall be graded to control erosion within limits defined in the SWPPP.
- B. Temporary control measures shall be provided and maintained by CONTRACTOR using BMPs described in the SWPPP.
- C. The area of bare soil exposed at any one time by construction operations shall be held to a minimum.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 STORM WATER POLLUTION CONTROLS DURING SITE WORK

- A. CONTRACTOR shall provide controls to prevent storm water runoff from contacting exposed soil containing COPCs on the Site. CONTRACTOR shall prevent Contact Water and sediment, especially sediment potentially containing Site COPCs, from migrating or flowing across the Site, cross-contaminating other areas of the Site, or leaving the Site.
- B. Storm water that contacts Site soil not containing COPCs may be collected by CONTRACTOR and conveyed to other non-impacted parts of the Site for infiltration, or eventual discharge via active storm water drainage systems that are in compliance with CONTRACTOR'S SWPPP, or reused on Site for dust control purposes, at the discretion of the CONTRACTOR, so long as this activity does not violate City of Vernon requirements or any other requirements of the Contract Documents.
- C. Contact Water shall be handled using the procedures described in the Specifications and pursuant to the CONTRACTOR'S SWPPP. Contact Water shall only be allowed to infiltrate those portions of the Site where the Contact Water originated, only to the extent that the area is already known to contain COPCs. CONTRACTOR shall be responsible for collection, treatment and/or disposal of Contact Water that is created due to

CONTRACTOR'S failure to implement effective storm water or other water management practices. This determination shall be made by ENGINEER.

- D. CONTRACTOR shall also provide controls to prevent storm water from flowing into, or accumulating in excavations, pits, or trenches constructed during the Work. CONTRACTOR shall be responsible for the removal, treatment (if required), and proper disposal of any rainwater or storm water that has accumulated in excavations, pits, or trenches prior to the pits being backfilled.
- E. During performance of Below Grade Demolition and Soil Excavation Work, CONTRACTOR shall maintain Site areas, both paved and unpaved, to prevent ponding or accumulation of storm water, Contact Water, or other water at the Site, pursuant to the requirements of the City of Vernon.
- F. If ENGINEER observes conditions that are not in compliance with the SWPPP or other applicable Laws and Regulations, ENGINEER will notify CONTRACTOR. CONTRACTOR shall provide a remedy immediately. If CONTRACTOR fails to take appropriate action, ENGINEER will provide a remedy and deduct the costs of the remedy from the amount due to CONTRACTOR.
- G. After all Site Work is complete, the CONTRACTOR shall file a Notice of Termination for the General Permit. CONTRACTOR shall leave the Site such that there are storm water controls in place that prevent rainfall or storm water from ponding on-Site or from flowing off-Site in an uncontrolled manner.

3.02 GENERAL MONTHLY RAINFALL

Month	Average Monthly Rainfall (Inches)
January	3.18
February	3.44
March	2.45
April	1.04
May	0.26
June	0.06
July	0.01
August	0.06
September	0.28
October	0.44
November	1.30
December	2.37
Total	14.91

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Source: Western Regional Climate Center

(1) Period of Record: 1/1/1914 – 12/31/2005

(2) Location: Los Angeles Civic Center

PART 4 – PAYMENT

Storm Water Management will be measured as a lump sum. Payment will be calculated as a portion of the lump sum price for Storm Water Management as based on the unit price provided in the Bid Form, based on the percentage of Work completed as shown on the CONTRACTOR'S Schedule and Schedule of Values.

END OF SECTION

SECTION 01510**MOBILIZATION AND DEMOBILIZATION****PART 1 – GENERAL****1.01 SCOPE**

- A. Mobilization and Demobilization shall consist of all preparatory Work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to and from the project Site, necessary for the Work; for furnishing, erection, maintenance, and removal of construction signs and for all other Work and operations which must be performed, or costs incurred, not otherwise paid for under another bid item for this Contract.

1.02 RELATED REQUIREMENTS

- A. The Drawings, the provisions of the Contract including the General Conditions apply to the Work of this Section.
- B. Section 01330 – Submittals and Procedures
- C. Section 01500 – Temporary Facilities and Site Controls
- D. Section 01900 – Health and Safety Requirements

PART 2 – PRODUCTS**2.01 MATERIALS**

CONTRACTOR materials shall be suitable for their intended use and shall conform to applicable codes and standards. Manufacturer's requirements shall be strictly adhered to by CONTRACTOR. Recycled materials may be utilized after approval by ENGINEER or OWNER provided that they are sound and capable of performing their intended function. Recycled concrete and/or asphalt materials, imported from off-Site will not be allowed.

PART 3 – EXECUTION**3.01 MOBILIZATION**

- A. CONTRACTOR shall have submitted and obtained OWNER'S approval for all submittals required prior to the beginning of on-Site construction activities in accordance with Section 01330 – Submittals and Procedures. Upon Mobilization, CONTRACTOR shall implement all requirements of Section 01500 – Temporary Facilities and Site Controls prior to commencing with other Site Work.

3.02 EQUIPMENT AND TOOLS

- A. CONTRACTOR shall deliver to the job-Site all construction equipment, tools, materials and supplies necessary for the performance of the Work.
- B. CONTRACTOR shall perform safety inspections prior to use for all equipment and tools received on-Site.

3.03 LABOR FORCE

- A. CONTRACTOR shall establish a Work force sufficient to commence and sustain the Work as required by the schedule. The Work force shall consist of competent and trained workers.
- B. General Site workers (such as equipment operators, general laborers, and supervisory personnel) shall be required to have completed at a minimum 40-hour OSHA training in accordance with Section 01900 - Health and Safety Requirements.

3.04 DEMOBILIZATION

- A. CONTRACTOR shall remove all waste, including but not limited to, excess construction material, segregated waste, contaminated material, building debris, rubble, and foreign material. Haul and access roads shall be completely cleared of waste, dirt, and debris. Potentially contaminated equipment and materials shall be decontaminated prior to removal from Site.
- B. CONTRACTOR shall disconnect and remove all temporary utilities installed by CONTRACTOR.
- C. CONTRACTOR shall shut down, decontaminate, and remove all water storage facilities and decontamination areas.

PART 4 – PAYMENT

Mobilization and Demobilization will be measured as a lump sum and shall be full compensation for all Work described in this section. Payment will be based on the Contract lump sum bid price for Mobilization and Demobilization, payable with 60 % at mobilization and 40% at demobilization.

END OF SECTION

SECTION 01550

TRAFFIC CONTROL

PART 1 – GENERAL

1.01 SUMMARY

- A. The Work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required for designing, furnishing, installing, maintaining, and removing systems for control of traffic during execution of the Work.

1.02 REFERENCES

- A. Section 01560 – Site Security

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. Regulatory requirements which govern the Work of this Section include, but may not be limited to, the following governing codes:
 - 1. Applicable current State of California Vehicle Code Divisions 14.1 and 15.
 - 2. Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (MUTCD) 2003 as amended by the MUTCD 2003 California Supplement. In this Section these two combined documents are referenced as "MUTCD."

1.04 SUBMITTALS

- A. Prior to Mobilization to the Site, CONTRACTOR shall submit a Traffic Control Plan as a part of their Construction Work Plan. CONTRACTOR'S Traffic Control Plan shall be developed to address issues related to vehicle movement during transportation of equipment, soil, aggregates, supplies and other materials to and from the Site. The Traffic Control Plan shall identify primary ingress and egress routes at the Site, trucking haul routes to freeways from the Site and vice-versa, traffic controls and other requirements during off-Site shipments of soil and other materials, contingency measures for any actions to remediate spills in transit, and releases or accumulations on adjacent public right-of-ways.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. All signs, channeling devices, traffic cones, vertical panels, barricades, signaling flags, temporary pavement markings, and other traffic control devices shall be in compliance

with MUTCD requirements. Signs placed on the shoulder of streets in the vicinity of the Work Site shall be equipped with flashing lights and shall be constructed of Coroplast or an ENGINEER-approved soft material. All traffic control devices shall be inspected and maintained by CONTRACTOR.

- B. All traffic barriers shall be in compliance with MUTCD requirements, including testing in accordance with the National Cooperative Highway Research Program (NCHRP) Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features." The barriers shall be certified for use by the FHWA. CONTRACTOR shall provide test data or calculations certified by a licensed engineer currently registered in the State of California demonstrating that the barrier system will effectively prevent the intrusion of vehicles into excavation areas.
- C. Traffic control devices used in construction and maintenance activities (i.e., signs, barricades or warning lights) which are placed in public right-of-way shall be marked or affixed with a sticker, clearly identifying the name, address and telephone number of the individual responsible for the control device.
- D. Construction fences used to separate Work activities from pedestrians and motorists must be a minimum of six (6) feet tall and constructed of chain link material. See Section 01560 – Site Security for security fence requirements. CONTRACTOR shall install steady burn or flashing warning lights at least every 30 feet along the fencing that abuts roadways or the pedestrian and bicycle path.

PART 3 – EXECUTION

3.01 GENERAL

- A. CONTRACTOR shall implement and perform Traffic Control during the Work in accordance with local, state, and federal regulations governing traffic control and consistent with Work described in the Traffic Control Plan.
- B. Safety of the public and convenience of traffic shall be regarded as of prime importance. Unless otherwise directed, CONTRACTOR shall keep public streets open and shall provide a dust free, smooth and comfortable ride to traffic. It shall be responsibility of CONTRACTOR to ensure that traffic may safely bypass the construction sites. Flaggers shall assist traffic at all times when trucks are entering roadways. Two-way traffic shall be maintained on Fruitland Avenue and Boyle Avenue at all times.
- C. CONTRACTOR shall plan and execute its operations in a manner that will cause a minimum interference with traffic. CONTRACTOR shall place and maintain in good condition, barriers where motorists or pedestrians are rerouted or blocked from using regular traffic lanes.
- D. CONTRACTOR shall notify the OWNER at least five working days in advance of beginning any proposed Work with intention to close or partially block any street or any

part thereof of any construction affecting free flow of traffic or closing /blocking any public sidewalk. CONTRACTOR shall plan and adequately provide barriers, barricades and warning devices.

- E. All fire hydrants and water control valves shall be kept free from obstruction and available for use at all times.
- F. Prior to beginning Work, CONTRACTOR shall designate, in writing, a competent person who will be responsible and available on the project Site or in the immediate area to ensure compliance with Traffic Control. CONTRACTOR shall hold harmless OWNER, ENGINEER, their Agents, and employees from all suits, actions or claims, and from all liability and damages from any and all injuries and damages sustained by any person or property as a result of any neglect, omission, or misuse of Traffic Control Devices by CONTRACTOR. The decision to use a particular device at a particular location shall be the sole responsibility of CONTRACTOR.
- G. CONTRACTOR shall restrict vehicular and pedestrian access to the Work areas in accordance with Section 01560 – Site Security.
- H. CONTRACTOR shall schedule and stagger all trucks and material deliveries to minimize on-Site and off-Site congestion and to prevent accidents. Direct loading of trucks on public roadways is strictly prohibited.
- I. CONTRACTOR is responsible for vehicular traffic of Subcontractors and vendors.
- J. Whenever it is necessary to cross, obstruct, or close roads, driveways, and walks, CONTRACTOR shall provide and maintain detours or other temporary measures to accommodate travel.
- K. All barriers, barricades and obstructions in public right-of-ways shall be illuminated with warning lights from sunset to sunrise. Illumination shall meet the minimum requirements of MUTCD.
- L. Material storage and conduct of the Work on, or along side, public streets shall cause a minimum obstruction and inconvenience of the traveling public.
- M. CONTRACTOR'S Flaggers shall be required any time it is necessary for CONTRACTOR'S equipment to move into or across an open traffic lane, or at other such times as directed by ENGINEER. Flaggers shall be utilized to aid exit of hauling equipment from open traffic lanes to the Work area, and entry of hauling equipment from Work area to open traffic lanes. Flaggers shall be dressed and conduct operations in accordance with California Department of Transportation requirements. Flagging operations shall be the sole responsibility of CONTRACTOR.
- N. If CONTRACTOR'S Traffic Controls are not in compliance with any of the above provisions as outlined in Section 01550 – Traffic Control, ENGINEER may elect to stop

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Work at CONTRACTOR'S expense. CONTRACTOR may continue Work when Traffic Controls are approved by ENGINEER.

4.0 MEASUREMENT AND PAYMENT

Traffic Controls will not be measured separately. Full compensation for all CONTRACTOR implementation and compliance with this Section shall be considered incidental and included in the Contract lump sum price for Mobilization and Demobilization.

END OF SECTION

SECTION 01560

SITE SECURITY

PART 1 – GENERAL

1.01 SUMMARY

- A. This Section describes Site security, and temporary security fencing that shall be provided by CONTRACTOR during performance of the Work.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 WORK SITE SECURITY

- A. OWNER or ENGINEER is not responsible for any loss CONTRACTOR may incur due to theft or vandalism at the Site.
- B. CONTRACTOR shall be responsible for Site security and shall install sturdy security fencing and gates at least 6 feet in height constructed of chain-link material equipped with a windscreen fabric to provide a physical and visual barrier around the Work Site as required for Site security. CONTRACTOR shall also maintain and protect existing property boundary fences, walls and windscreen fabric.
- C. CONTRACTOR shall be responsible for barricades, signs, and other measures as necessary for protection and access control of all open pits and sumps, open excavation areas and stockpiled soil. CONTRACTOR shall be responsible for protecting all Work areas and open excavations from entry by unauthorized personnel or the unknowing public. In no case shall the degree of Site security be reduced by CONTRACTOR'S Work or failure to act.
- D. CONTRACTOR shall be responsible for controlling access to the Site and other defined Work zone limits and boundaries for general public visitors, vendors, CONTRACTOR and Subcontractor personnel and other unauthorized personnel. CONTRACTOR shall maintain a daily sign-in sheet for all Site Visitors. CONTRACTOR shall submit daily sign-in sheet to ENGINEER on a bi-weekly basis.
- E. CONTRACTOR shall provide temporary installation of sturdy security fencing and gates at least 6 feet in height constructed of chain-link material that prevents entry by the public to active construction areas, open excavations, and stockpiled material. Security fencing along public roadways shall be installed such that it does not prevent excavation of soils adjacent to the roadway. Temporary fencing may be installed using portable

bases for support. Portable bases shall secure the temporary fencing during windy conditions (up to 50 miles per hour). CONTRACTOR shall immediately repair security fencing that is blown down or damaged by CONTRACTOR or the public.

3.02 ON-SITE SECURITY PERSONNEL

- A. At CONTRACTOR'S discretion, CONTRACTOR may provide its own security personnel. No additional payment will be made for such personnel.
- B. CONTRACTOR shall ensure that any security personnel have been made aware of the Site hazards and provided with the training and medical examination requirements as required to perform the Work.
- C. OWNER shall have the right of approval and rejection of the security personnel assigned to the Work Site at any time during the Work.

PART 4 – MEASUREMENT AND PAYMENT

- A. Site Security will not be measured separately. Full compensation for all Work described in this Section shall be made as part of the lump sum price for Mobilization and Demobilization.

END OF SECTION

SECTION 01770**CONTRACT CLOSEOUT****PART 1 – GENERAL****1.01 SCOPE**

Contract Closeout is defined to include general requirements near end of the Contract in preparation for final completion, final payment, normal termination of Contract, and similar actions evidencing completion of the Work.

1.02 SECTION INCLUDES

- A. Prerequisites to Substantial Completion and Final Completion.
- B. Testing.
- C. Protecting installed construction.
- D. Submittals.
- E. Project Record Documents.

1.03 PREREQUISITES TO SUBSTANTIAL COMPLETION

- A. Prior to requesting inspection for certification of Substantial Completion, for either entire project or phases or portions thereof, CONTRACTOR shall complete and submit the following, or evidence thereof, along with written request to ENGINEER for inspection:
 - 1. A list of items to be completed or corrected after Substantial Completion, the value of each incomplete item, and reasons for incompleteness of each.
 - 2. Construction costs for completing including labor, material and all fixtures.
 - 3. Final cleanup requirements for the Site including the removal of all surplus materials, discarded materials, and rubbish.
 - 4. All warranties and guarantees.
 - 5. Partial lien waivers for Work completed and for which CONTRACTOR has been paid.
- B. Inspection Procedure: Upon receipt of CONTRACTOR'S request, ENGINEER and OWNER will either proceed with inspection or ENGINEER will advise CONTRACTOR of prerequisites not fulfilled. Following initial inspection, ENGINEER and OWNER will either prepare Certificate of Substantial Completion, or advise CONTRACTOR of Work

which must be performed prior to issuance of certificate and repeat inspection when assured that Work has been substantially completed. Results of completed inspection will form a "punch-list" of activities to be completed by CONTRACTOR prior to final acceptance.

1.04 PREREQUISITES TO FINAL COMPLETION

- A. Prior to requesting ENGINEER'S and OWNER'S final inspection for certification of final completion and final payment, as required by the General Conditions, CONTRACTOR shall complete and submit to ENGINEER the following and list known exceptions in request:
1. Final payment request with itemized invoice and backup invoices from equipment suppliers and final lien waivers and supporting documentation not previously submitted and accepted.
 2. Updated final statement, accounting for final changes to Contract Sum.
 3. Final copies of all weight tickets, manifests, Bills of Lading and Disposal Log.
 4. Copy of ENGINEER'S final punch-list of itemized Work to be completed or corrected, certifying that each item has been completed or otherwise resolved for acceptance.
 5. Certification from CONTRACTOR'S liability insurance carrier that no claims for death, personal injury, or property damage have been filed or are reasonably anticipated in connection with CONTRACTOR'S Work on the Site.
- B. Re-inspection Procedure: Upon receipt of CONTRACTOR'S notice that Work has been completed, including punch-list items resulting from earlier inspections and except incomplete items delayed because of acceptable circumstances, ENGINEER will re-inspect Work. Upon completion of re-inspection, ENGINEER will either prepare certificate of final acceptance or advise CONTRACTOR of Work not completed or obligations not fulfilled as required for final acceptance. If ENGINEER finds items during walk-through which have not been properly adjusted, reworked, or replaced as indicated on the ENGINEER'S punch list from the previous walk-through, CONTRACTOR shall be charged ENGINEER'S normal hourly billing rate and reasonable expenses for all subsequent walk-throughs.

1.05 TESTING

- A. Reports shall be submitted to ENGINEER indicating observations and results of tests and indicating compliance or non-compliance with requirements of the bid package.

1.06 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate Work area to prevent damage.

1.07 SUBMITTALS

- A. General: ENGINEER'S approval of the current status of Project Record Documents will be a prerequisite to ENGINEER'S approval of requests for project payment and request for final payment as defined in the Contract Documents.
- B. Progress Submittals: Prior to submitting each request for progress payment, secure ENGINEER'S approval of Project Record Documents as currently maintained. ENGINEER will initial and date each drawing at the time of approval.
- C. Final Submittal: Prior to execution of the semi-final payment, submit the final Project Record Documents to ENGINEER and secure their approval.

1.08 SURVEYING

- A. All surveying shall be performed by a State of California Licensed Surveyor. Locations shall be surveyed to within 0.1 foot relative to the North American Datum of 1927 (NAD27), California State Coordinate System. Elevations shall be surveyed to within 0.01 foot relative to the 1988 North American Vertical Datum (NAVD88). Final Grading topographic survey Work shall have an accuracy of at least the 3rd order as defined by the Caltrans Survey Manual. The locations of any remaining portions of below grade structures surveyed as defined in Contract Documents shall be plotted and submitted to the ENGINEER in the form of an AutoCAD file (with Pen table) and a D-size (22-inch by 34-inch) hard copy drawing with company name and date of submittal clearly noted on the drawing.

1.09 PROJECT RECORD DOCUMENTS

Project Record Documents are to provide factual information regarding all aspects of the Work, both concealed and visible, to enable future modifications or designs to proceed without lengthy and expensive Site measurement, investigation and examination.

- A. Maintain on-Site one set of the following record documents; record actual revisions:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.

4. Change Orders and other modifications to the Drawings and Specifications.
 5. Reviewed Shop Drawings, Product Data, and Samples.
 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by OWNER or ENGINEER.
- C. Store Project Record Documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.
Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
1. Manufacturer's name and product model and number.
 2. Product substitutions or alternates utilized.
 3. Changes made by Addenda and modifications.
- E. Record Drawings: Legibly mark each item to record actual construction including:
1. Record date and location of major Work as performed by Phases described in the Contract Documents.
 2. Survey and document location, lateral extent and depth to the top or uppermost portion of any remaining subsurface structures left in place after completion of Below Grade Demolition, as specified in the Contract Documents. Include date of final Work of each demolition component by structure, i.e. structure demolition, structure perforation and backfilling, and structure capping.
 3. Survey and document location, lateral extent and depth to the top or uppermost portion of any remaining utilities and pipelines either grouted in place or capped at the property boundary after completion of Below Grade Demolition, as specified in the Contract Documents. Include pipe diameter and material of construction, type of utility, and date of final Work performed on each utility or pipeline noted in the drawing.
 4. Record and document location, type and extent of any remaining active utilities after completion of Below Grade Demolition Work.
 5. Record and survey boundaries of any remaining pavements, slabs, walls or other above ground structures.
 6. Surveyed field dimensions of soil excavation areas. Include start and finish date for each excavation area as shown on the Drawings.

7. Backfill areas where crushed recycled aggregates were placed at finished thicknesses greater than three-feet.
8. Relevant details or other notes as applicable.

F. Submit Final Project Record Documents to ENGINEER as follows:

1. At completion of the Work, secure a review by ENGINEER of all recorded data. Make all required revisions.
2. Submit the completed total set of Project Record Documents to the ENGINEER as described in Paragraph 1.07. Participate in review meeting as required by ENGINEER, make all required changes in the Project Record Documents, and promptly deliver the final Project Record Documents to ENGINEER.

PRODUCTS

Not Used.

EXECUTION

Not Used.

PART 4 – PAYMENT

There shall be no separate payment for CONTRACTOR for implementation and compliance with the requirements of this Section. Full compensation for all CONTRACTOR implementation and compliance with this Section under the Contract shall be considered as included in the Contract lump sum price for Mobilization and Demobilization.

END OF SECTION

SECTION 01900**HEALTH AND SAFETY REQUIREMENTS****PART 1 – GENERAL****1.01 SCOPE**

This Section outlines the health and safety requirements to be followed by the CONTRACTOR during the performance of the Work. It is anticipated that the CONTRACTOR will perform the majority of the Work utilizing Level D protection with the ability to upgrade to Level C. This section does not preclude the CONTRACTOR'S responsibility to conduct certain Work tasks in Level A or Level B as required.

These requirements are in addition to but do not supersede any federal, OSHA, state, Cal/OSHA, or local regulations. If a conflict occurs between these requirements and current regulations, the more stringent shall apply. These requirements are in accordance with and incorporate the current health and safety guidelines established in the Standard Operating Safety Guides, prepared by the U.S. EPA Office of Emergency and Remedial Response, Hazardous Response Support Division, September 1984, and the Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, October 1985, and OSHA and Cal/OSHA standards for hazardous waste operations (29 Code of Federal Regulations (CFR) 1910.120 and 8 California Code of Regulations (CCR))

1.02 DEFINITIONS

- A. CIH – Certified Industrial Hygienist – A trained specialist with at least 5 years experience in hazardous material processing and working knowledge of selection and use of personal protective equipment (PPE), air monitoring, regulations, and other health and safety issues.
- B. SSO – Site Safety Officer – A trained specialist in health and safety with a minimum of 3 years experience and working knowledge of the use of PPE, field monitoring equipment, regulations, and hazard identification.

1.03 RELATED REQUIREMENTS

- A. The Drawings, the provisions of the Contract including the General Conditions apply to the Work of this Section.
- B. Section 01330 – Submittals and Procedures
- C. Section 01500 - Temporary Facilities and Site Controls
- D. Section 01501 – Dust Control

E. Section 02120 – Off-Site Transportation and Disposal

1.04 SUBMITTALS

- A. CONTRACTOR shall submit its Site-specific Health and Safety Plan in accordance with Section 01330 - Submittals and Procedures.
- B. CONTRACTOR shall submit OSHA 40-hour training certificates and current 8-hour update certificates for each worker that enters the Exclusion Zone and Contamination Reduction Zone areas and maintain a file of these certificates on-Site (see Paragraph 1.07).
- C. Qualifications: The names and qualifications of the CONTRACTOR'S CIH and SSO.

1.05 HAZARDOUS MATERIALS HEALTH AND SAFETY

- A. The project Site is a former aluminum casting facility. The facility historically handled various chemicals and regulated substances. The subgrade soil is impacted with volatile organic compounds (VOCs) consisting of chlorinated and non-chlorinated solvents such as trichloroethene (TCE), petroleum products, metals, and polychlorinated biphenyls (PCBs). The groundwater is impacted with chlorinated solvents. Localized concrete surfaces are impacted with PCBs as shown on the Drawings. The handling and management of PCB-containing materials shall comply with Toxic Substances Control Act (TSCA) regulations (40 CFR 761). The significant compounds of concern in soil include:

COPC	Maximum Concentration Detected in Soil	Units
PCB (Aroclor 1248)	2,000,000	µg/kg
Benzene	1600	µg/kg
Naphthalene	5400	µg/kg
1,2,4 Trimethylbenzene	37,000	µg/kg
1,3,5 Trimethylbenzene	9,400	µg/kg
TCE	3,800	µg/kg
PCE	260	µg/kg
Stoddard Solvent	890	mg/kg
Heavy Range TPH (C22-C44)	1217	mg/kg
Arsenic	16.00	mg/kg
Cadmium	5	mg/kg
Chromium (Total)	200	mg/kg
Lead	3,000	mg/kg

- B. Prop 65 Notification: CONTRACTOR and CONTRACTOR'S personnel shall be notified that chemicals known to the State of California to cause cancer, birth defects, or reproductive harm are known to be present at the Site.
- C. In addition to the guidelines referenced above, the following regulations and references apply to performance of the Work:
 1. Hazardous Waste Operations and Emergency Response - 29 CFR 1910.120 and 8 CCR 5192
 2. Occupational Safety and Health Administration (OSHA), Construction Industry Standards - 29 CFR 1926
 3. Occupational Safety and Health Administration (OSHA), General Industry Standards - 29 CFR 1910
 4. Cal/OSHA Standards – Title 8 CCR
 5. Rio Tinto HSE Performance Standards – Environment, E2 Air Quality Control, E5 Hazardous Materials and Contamination Control, E6 Noise and Vibration Control, E7 Non-Mineral Waste Management - December 2008
 6. Rio Tinto HSE Performance Standards – Health, B1 Particulate and Gas/Vapour Exposures, B2 Hearing Conservation, B3 Manual Handling and Vibration, B4 Hazardous Substances, B5 – Radiation, B6 Thermal Stress, B7 Fitness for Work, B10 Occupational Exposure Limits - December 2008
 7. Rio Tinto HSE Performance Standards – Safety, C1 Isolation, C2 Electrical Safety, C3 Vehicles and Driving, C4 Working at Heights, C5 Confined Spaces, C6 Cranes and Lifting Equipment - December 2008

1.06 CONTRACTOR'S RESPONSIBILITIES

- A. CONTRACTOR is solely responsible for the health, safety, and protection of CONTRACTOR'S on-Site personnel or Subcontractors during the performance of the Work. CONTRACTOR shall perform the Work specified in these Contract Documents in accordance with the health and safety requirements specified herein, including the current edition of the Standard Operation Safety Guides and OSHA Guidance Manual, Rio Tinto HSE Performance Standards, and all federal, OSHA, state, and local health and safety regulations. It shall be the responsibility of the CONTRACTOR to be familiar with the required health and safety regulations in the performance of this Work.
- B. CONTRACTOR shall prepare a Site-specific Health and Safety Plan in accordance with Laws and Regulations. CONTRACTOR'S Site-specific Health and Safety Plan shall be prepared under the supervision of and be signed by a Certified Industrial Hygienist.

- C. CONTRACTOR shall provide a Health and Safety Officer to implement, monitor, and enforce its Site-specific Health and Site Safety Plan. The Health and Safety Officer shall have a sound working knowledge of federal and state occupational safety and health regulations and formal educational training in occupational safety and health.
- D. The Health and Safety Officer may implement requirements in addition to those specified herein.
- E. CONTRACTOR'S bid shall be based on use of specific levels of personal protection for various portions of the Work as described in the Contract Documents. It is anticipated that CONTRACTOR will perform the majority of the Work utilizing Level D protection with the ability to upgrade to Level C. Use of such levels in preparing the bid shall in no way influence the proper selection by CONTRACTOR of appropriate levels of worker protection in accordance with CONTRACTOR'S Site-specific Health and Safety Plan based on actual Site conditions.
- F. Should any unforeseen or Site-specific safety regulated factor, hazard, or condition become evident during the performance of the Work, CONTRACTOR shall take immediate and prudent action to establish and maintain safe working conditions and to safeguard Site personnel, the public, and the environment. CONTRACTOR shall also immediately inform the ENGINEER of such a condition.
- G. Personnel Requirements
 - 1. Certified Industrial Hygienist (CIH)
 - a. Qualifications of the CIH include:
 - i. Minimum of five (5) years experience in hazardous material processing.
 - ii. Demonstrable experience in Personal Protective Equipment (PPE) selection and use, hazardous material identification and disposal procedures, air monitoring techniques, and Site control measures.
 - iii. Working knowledge of federal OSHA, Cal/OSHA, and state regulations.
 - iv. Completion of all required OSHA Training in accordance with 29 CFR 1910.120, including completion of forty (40)-hour supervisory training and eight (8)-hour annual update and completion of three (3) days on-Site training by a fully qualified instructor.
 - b. Responsibilities:

- i. Responsible for certifying the CONTRACTOR'S Site-specific Health and Safety Plan, any task-specific Health and Safety Plans, and all additions and/or modifications thereto.
 - ii. Required to be accessible to the CONTRACTOR'S SSO as necessary, to assist in the identification and evaluation of potential hazards and the development of appropriate procedures for addressing known or suspected conditions or activities that may pose routine occupational hazards or immediate danger to life or health of all personnel on-Site and the public.
- c. Authority:
 - i. Suspend field activities if health and safety of any personnel on-Site or the public is endangered.
 - ii. Suspend individuals from field activities due to infractions of the Site-specific Health and Safety Plan.
- 2. Site Safety Officer (SSO) – Qualifications of the SSO include:
 - a. Qualifications of the SSO include:
 - i. Completion of all required OSHA Training in accordance with 29 CFR 1910.120, including completion of forty (40)-hour supervisory training and eight (8)-hour annual update and completion of three (3) days on-Site training by a fully qualified instructor.
 - ii. Minimum of three (3) years of experience in hazardous substance/waste Site remediation or related Work.
 - iii. Current certification in first aid and cardiopulmonary resuscitation (CPR).
 - iv. Working knowledge of federal, state, and local occupational health and safety regulations.
 - v. Working knowledge of air monitoring techniques and the development of health and safety programs for personnel working in potentially hazardous or toxic environments.
 - b. Responsibilities:
 - i. Required to be on-Site on full-time basis when any Work is in progress.

- ii. Responsible for the development, implementation, enforcement, and monitoring of the Health and Safety Program for the Project.
 - iii. Responsible for conducting the preconstruction indoctrination, pre-entry briefings, and other periodic training of all on-Site CONTRACTOR personnel with regard to contents of the Site-specific Health and Safety Plan and other safety requirements to be observed during construction.
 - iv. Responsible for performing air monitoring as required by the applicable regulations and the Site-specific Health and Safety Plan.
 - v. SSO may have other project duties and not be solely dedicated to health and safety.
- c. Authority:
- i. Suspend field activities if health and safety of any on-Site personnel or the public is endangered.
 - ii. Suspend individuals from field activities due to infractions of the Site-specific Health and Safety Plan.

3. Workers

- a. Qualifications as applicable:
- i. Asbestos is present in certain subsurface piping materials. Workers abating Asbestos Containing Materials (ACM) shall have appropriate California Asbestos Worker or Supervisory training.
 - ii. Lead may be present in dust and remaining painted surfaces. Workers coming into contact with lead-bearing materials shall have received lead awareness training in accordance with California Department of Public Health (CDPH).
 - iii. Metals dust and PCB contamination may be present on concrete or slab surfaces of the former buildings. All workers at the Site shall be 40-hour trained in hazardous materials handling per OSHA requirements and in accordance with this section (Section 01900 – Health and Safety Requirements).
 - iv. Fugitive and silica dust generation is expected on this project. Workers at the Site shall have the necessary training as required by regional or state regulations and in accordance with Section 01501 – Dust Control.

1.07 WORK AREAS

- A. The CONTRACTOR shall clearly lay out and identify Work areas or zones in its Site Health and Safety Plan and shall limit equipment, operations, and personnel in the areas as defined below:
1. **Exclusion Zone:** The exclusion zone (EZ) is the zone where contamination does or could occur. All people entering the exclusion zone shall wear prescribed levels of protection. An entry and exit check point shall be established at the periphery of the exclusion zone to regulate the flow of personnel and equipment into and out of the zone and to verify that the procedures established to enter and exit are followed.
 2. **Contamination Reduction Zone:**
 - a. Between the exclusion zone and the support zone is the contamination reduction zone (CRZ), which provides a transition between contamination and clean zones. The CRZ serves as a buffer to further reduce the probability of the clean or support zone becoming contaminated or being affected by other exiting hazards. It provides additional assurances that the physical transfer of contaminating substances on people, equipment, or in the air is limited through a combination of decontamination, distance between exclusion and support zones, air dilution, zone restrictions, and Work functions.
 - b. At the boundary between the EZ and CRZ, decontamination station(s) shall be established, one for personnel and small equipment, and one for heavy equipment. Facilities shall be provided as specified to provide for adequate decontamination of personnel and equipment and to maintain the cleanliness of the contamination reduction zone.
 3. **Support Zone:** This area is defined as being an area outside the zone of contamination. The support zone (SZ) shall be clearly delineated and shall be secured against active or passive contamination from the Work Site. The function of the area includes:
 - a. An entry area for personnel, material, and equipment to the area of Work,
 - b. An exit area for decontaminated personnel, materials, and equipment from the Work area,
 - i. The housing of Site services; and
 - ii. A storage area for clean safety and Work equipment.

1.08 PERSONNEL PROTECTION PROGRAM/SITE HEALTH AND SAFETY PLAN

- A. CONTRACTOR shall establish and maintain a complete Health and Safety Program for all personnel working at the Site including personnel that are not CONTRACTOR'S employees or Subcontractors. CONTRACTOR shall prepare a Site-specific Health and Safety Plan, under the direction and approval of their CIH that describes the Site and potential hazards and prescribes monitoring requirement, personal protection requirements and criteria for their selection, Work practices and limitations, and emergency response. CONTRACTOR shall submit Site-specific Health and Safety Plan to ENGINEER for review 15 calendar days prior to mobilization. CONTRACTOR will not be allowed to mobilize to the Site without ENGINEER'S acceptance of Site-specific Health and Safety Plan, including any requested or required modifications and any task-specific requirements and procedures developed for this project.
- B. CONTRACTOR shall certify that all CONTRACTOR, Subcontractor, or service personnel entering the EZ or CRZ for the purpose of the Work, for health, safety, security, or administration purposes, for maintenance, or for any other Site-related function, have received safety training as defined in Paragraph (3) of 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response, Interim Final Rule," including supervisory personnel.
- C. CONTRACTOR shall be responsible for and guarantee that personnel not successfully completing the required training are not permitted to enter the EZ or CRZ for any reason during Work activities.
- D. CONTRACTOR shall provide and require that all previously trained CONTRACTOR, Subcontractor, or service personnel assigned to or entering the EZ and CRZ are capable of and familiar with the use of safety, health, respiratory, and protective equipment and with the safety and security procedures required for this operation.
- E. All personnel utilizing respiratory protection equipment shall be fit tested and properly trained and experienced in their use. All respiratory protection equipment that is utilized shall be properly decontaminated and sanitized at the end of each Work day.
- F. CONTRACTOR shall provide all on-Site personnel with appropriate personal safety equipment and protective clothing. CONTRACTOR shall ensure that all safety equipment and protective clothing is kept clean and well-maintained. All personal protective equipment shall be properly disposed of or decontaminated at the end of the Work day.

1.09 INITIAL ON-SITE TRAINING

- A. CONTRACTOR shall provide Site-specific training to all personnel who will work on the Site, including personnel that are not CONTRACTOR'S employees or Subcontractors. This Site-specific training shall include, but not be limited to, all items

listed below, including emergency procedures for chemical exposure or release, fire, or explosion, and personal injury:

1. Acute and chronic effects of any toxic chemicals identified at the Site.
2. Physical health hazards identified at the Site.
3. Personal hygiene.
4. Safety equipment and procedures required for personal protection.
5. Proper use and fitting of respirator protection equipment.
6. Work zones established at the Site.
7. Decontamination procedures.
8. Prohibitions in contaminated areas:
 - a. Beards and long sideburns, if respiratory protection is anticipated or required.
 - b. Eating, smoking, and chewing.
 - c. Working when ill.
 - d. Working under the influence of alcohol or drugs.
9. Buddy system explained.
10. Emergency response.

1.10 EMERGENCY AND FIRST AID REQUIREMENTS

- A. CONTRACTOR shall pre-arrange for emergency medical care services at a nearby medical facility and establish emergency routes. CONTRACTOR shall establish communications links with health and emergency services to inform them of any emergency situations that may arise.
- B. In the event of any emergency associated with or resulting from Work at this Site, CONTRACTOR shall cease Work activity on the Site, as appropriate, per CONTRACTOR'S Site Health and Safety Plan. CONTRACTOR shall also take diligent action to remove or otherwise minimize the cause of the emergency, render full assistance to local authorities to remedy any impact on local residents or property, alert ENGINEER, and institute whatever measures might be necessary to prevent any repetition of the conditions or actions leading to or resulting in the emergency.

- C. CONTRACTOR shall have at least one certified First Aid Technician on-Site at all times of Work. This person may perform other duties, but must be immediately available to render first aid when needed. Certification shall be current, kept on-Site, and consist of successful completion of an American Red Cross course in Multi-Media First Aid and Cardio-Pulmonary Resuscitation (CPR).

1.11 PERSONAL HYGIENE AND DECONTAMINATION

- A. CONTRACTOR shall be responsible for, and ensure that all CONTRACTOR, Subcontractor, and service personnel performing or supervising remedial Work within the EZ or CRZ, or exposed or subject to exposure to hazardous chemical vapors, liquids, dusts, or contaminated solids, observe and adhere to the personal hygiene-related provisions of this Section, the U.S. EPA Standard Operating Safety Guides, and all federal and OSHA regulations and guidance.
- B. CONTRACTOR, Subcontractor, and service personnel found to be consistently disregarding the personnel hygiene-related or health and safety provisions of this plan shall, at the request of the ENGINEER, be barred from the Site at no cost to OWNER or ENGINEER.
- C. CONTRACTOR shall provide all personnel, materials, and equipment needed to support their health and safety program. Equipment shall include:
1. Suitable disposable outer wear, gloves, hard hats, and footwear on a daily basis for the use of all on-Site personnel including ENGINEER.
 2. Appropriate NIOSH Certified respiratory protection equipment, if required, in sufficient quantities for all CONTRACTOR on-Site personnel.
 3. Canisters, cartridges, spare parts, repair tools, hoses, connectors, and other respiratory protection support items as needed.
 4. Contained storage and disposal for used outer wear.
 5. Hand washing facilities.
 6. A facility for changing into and out of and storing Work clothing, separate from street clothing, including separate facilities for women.
 7. Sanitation facilities as specified in 29 CFR 1926.
 8. A lunch and/or break area.
 9. A smoking area well separated from the EZ and CRZ.

- D. Used disposable outer wear shall not be reused, and when removed, shall be placed inside disposal containers provided for that purpose and managed in accordance with Section 02120 – Off-Site Transportation and Disposal.
- E. Smoking, chewing tobacco, eating, and drinking shall be prohibited in the EZ and CRZ.
- F. Soiled disposable outer wear shall be removed prior to leaving the CRZ to enter the SZ, and prior to cleansing hands.

1.12 VEHICLE AND EQUIPMENT DECONTAMINATION

- A. The CONTRACTOR'S Construction Plan shall state the locations of proposed CRZ areas and the procedures to be implemented for removing contaminants from personnel and equipment that contact sludge, waste, stabilized waste, COPC-impacted soil, concrete water, or other waste materials. CONTRACTOR'S decontamination procedures for surfaces that have contacted PCBs shall comply with the requirements set forth in 40 CFR 761 Subpart S. Additional requirements for equipment decontamination are provided in Section 01500 – Temporary Facilities and Site Controls.
- B. CONTRACTOR shall submit with its Site-specific Health and Safety Plan the proposed method for collecting and disposing of wash water and other decontamination fluids.
- C. Personnel engaged in vehicle decontamination shall wear protective equipment including disposable clothing and respiratory protection as necessary.

1.13 WORK AREA AIR MONITORING

- A. During the progress of the Work and as required by CONTRACTOR'S Site-specific Health and Safety Plan, CONTRACTOR shall monitor the quality of the air in and around each active Work location on a regular periodic basis (continually when respiratory protection is worn) to determine the need for respiratory protection and/or an upgrade in personal protective equipment. Monitoring shall comply with the requirements of Paragraph (h) of 29 CFR 1910.120 and any other applicable requirements. Any departures from general background shall be entered in the monitoring and project logs.
- B. CONTRACTOR shall maintain a log of the location, time, type, and value of each reading. Copies of daily log sheets shall be included in a daily report to the ENGINEER and shall be provided within 24 hours.
- C. CONTRACTOR'S Site-specific Health and Safety Plan shall indicate air monitoring readings or indications that will be used to initiate protective actions including, but not limited to, use of personal protective devices and Site evacuation. CONTRACTOR shall provide justification for such action levels in its Site-specific Health and Safety Plan.

1.14 VEHICLE TRAFFIC

Reckless driving will not be allowed at the Site. Excessive speed and/or reckless driving may result in suspension or dismissal of the operator of the vehicle. All motor driven equipment using fuel shall have spark arrestors.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Personal Protective Equipment (PPE) and monitoring equipment shall conform with requirements set forth by federal and state regulations and the standards of the industry.
- B. Respiratory Protection
 - 1. Where exposures to respirable crystalline silica may exceed 0.1 mg/m^3 based on an 8-hour time-weighted average (TWA), workers shall be provided, as a minimum, with personally issued and marked respirators equipped with high efficiency particulate air (HEPA) filters approved by NIOSH (99.97% efficient) to be worn in the designated Work area. Sufficient filters shall be provided for replacement as required by the workers or applicable regulations. Disposable respirators shall not be used.
 - 2. CONTRACTOR shall comply with OSHA 29 CFR Part 1926.134 and ANSI Standard Z88.2-1990 “Practices for 8-hour TWA, Respiratory Protection.”
 - 3. No worker shall be exposed to levels greater than 0.1 mg/m^3 respirable crystalline silica as determined by the protection factor of the respirator worn and the Work airborne area respirable crystalline silica levels.
 - 4. Protective Clothing.
 - a. Workers shall be provided with sufficient sets of protective full-body clothing to be worn in the designated Work area whenever a potential exposure to respirable crystalline silica concentrations above the PEL exists. Such clothing shall include, but not be limited to coveralls and eye protection.
 - b. Protective clothing shall not be worn outside the Work area. Non-disposable-type protective clothing and footwear shall be left in the Work area.
 - 5. Eye protection shall be provided and worn as required by applicable safety regulations. Equipment shall conform to ANSI Z87.1-1989.
 - 6. Head Protection: Hard hats or other head protection shall be provided as required by applicable safety regulations. Hard hats shall conform to ANSI Z89.1-1991, Class A or B.

7. Foot Protection: Nonskid footwear shall be provided to all workers. Footwear shall conform to ANSI Z41.1-1993, Class 75.
8. Workers shall not eat, drink, smoke, or chew gum or tobacco in or near the respirable silica Work areas.

PART 3 – EXECUTION

Not used.

PART 4 – PAYMENT

Health and Safety Requirements will not be measured separately. There will be no separate payment for CONTRACTOR for implementation and compliance with the requirements of this Section. Full compensation for all CONTRACTOR implementation and compliance with this Section under the Contract shall be considered as included in the Contract unit or lump sum prices for the various items of the Contract to which the requirements of this Section relate.

END OF SECTION

SECTION 02050**DEMOLITION****PART 1 – GENERAL****1.01 SCOPE**

Work under this section also includes demolition of remaining surface and Below Grade structures, on-Site crushing and pulverizing of concrete debris, decommissioning and removal of utilities and pipelines, and on-Site handling and segregation of debris for recycling or disposal. Known Constituents of Potential Concern (COPCs) on former building floor slabs and other structures include metals; lead containing paints; and polychlorinated biphenyls (PCBs). All COPCs, in addition to Volatile Organic Compounds (VOCs), may be encountered in the exposed Sub-Grade. CONTRACTOR'S CIH shall evaluate the personal protective equipment (PPE) requirements per task.

Work includes, but is not limited to:

- A. Identify, locate, and backfill all underground utilities, not part of public property, unless otherwise noted on the Drawings.
- B. Obtain all necessary permits and issue all applicable notifications for the project.
- C. Demolish and remove concrete and asphalt pavements, floor slabs, Below Grade footings, foundations, pits, sumps, and other structures or other improvements and features on-Site unless otherwise noted on the Drawings. Blasting or the use of explosives at the Site will not be permitted.
- D. Decommission pipelines and utilities.
- E. Segregate various demolition debris based on their final disposition. All scrap steel MUST be shipped directly to a receiving facility for direct shipment to a smelter.
- F. Crush uncontaminated concrete for use on-Site as unrestricted backfill and pulverize concrete with PCB concentrations greater than 1 milligram per kilogram (mg/kg), but less than 3.5 mg/kg for use on-Site as restricted backfill, as approved by the City of Vernon, and United States Environmental Protection Agency (U.S. EPA).
- G. Control and prevent dust emissions in accordance with requirements of South Coast Air Quality Management District (SCAQMD) and Section 01501 – Dust Control.
- H. Remove railroad tracks and ties on and beneath the pavement, not designated for protection. Steel and treated railroad ties shall be stockpiled in accordance with the requirements of Section 02114 – Soil and Waste Stockpiling.

- I. Protect adjacent sidewalks, utilities, pavements, walls, fences, monitor wells and facilities, designated for protection on the Drawings, from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by the Site operations.

1.02 RELATED REQUIREMENTS

- A. The Drawings, the provisions of the Contract including the General and Supplementary Conditions and the General Requirements apply to the Work of this Section.
- B. Section 01330 – Submittals and Procedures
- C. Section 01501 – Dust Control
- D. Section 02110 – Excavation of Contaminated Materials
- E. Section 02114 – Soil and Waste Stockpiling
- F. Section 02120 – Off-Site Transportation and Disposal
- G. Section 02351 – Backfilling and Grading

1.03 SUBMITTALS

- A. Prepare and provide Work submittal for demolition activities in accordance with requirements of Section 01330 – Submittals and Procedures.
- B. Upon completion of Work, provide Project Record Drawings in accordance with requirements of Section 01770 – Contract Closeout.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 LOCATE UTILITIES

Prior to beginning demolition, CONTRACTOR shall notify Underground Service Alert (USA) to identify the location of all utilities in the Work area. CONTRACTOR shall coordinate with the utility owner(s) or operator(s) to confirm locations and whether the utilities have been disconnected.

Prior to the demolition of any remaining structures, CONTRACTOR shall make arrangements for the disconnection and termination of all remaining utilities such as water, sewer, storm, that enter the Site, in conformance with the requirements of the City of Vernon and companies owning or controlling them.

CONTRACTOR shall notify, in writing, the City of Vernon and companies concerned when such disconnections, terminations or reconnections are required. Perform the Work in accordance with their standard practices and requirements and under their supervision, or make arrangements for the Work to be performed with their forces, if required.

3.02 PREPARE FOR DEMOLITION

CONTRACTOR shall perform the following prior to beginning demolition activities and during demolition activities:

- A. Record the locations and designation of survey markers and monuments prior to their removal. Provide three reference points for each survey marker and monument removed, established by a land surveyor licensed in the State of California.
- B. Perform surveys as the Work progresses to detect potential hazards resulting from demolition activities.
- C. Provide equipment capable of breaking and removing asphalt and concrete structures, as necessary to perform the Work.
- D. Lead and silica dust exposure assessments will be required at the start of demolition and every new or alternate task and/or method. These exposure assessments shall be submitted by CONTRACTOR to ENGINEER prior to commencement of demolition activities or new or alternative tasks and/or methods. Downgrading from level C PPE will be decided based on the exposure assessment.
- E. CONTRACTOR shall protect all Site features that are not designated for demolition.

3.03 DEMOLITION

CONTRACTOR shall perform Below Grade Demolition and Soil Excavation Work in phases, as described in the Specifications and shown on the Drawings.

The Site is paved with approximately equal areas with asphalt (approximately 245,000 square feet) and concrete (approximately 175,000 square feet). The pavement thicknesses vary. The average asphalt thickness is approximately 6 inches thick and the average concrete thickness is approximately 9 inches thick. CONTRACTOR may assume that the concrete pavement is unreinforced.

Former building floor slabs comprise approximately 600,000 square feet. The floor slabs are reinforced concrete approximately 9 to 12 inches thick on partially raised grade (the concrete may be thicker or thinner in some sections). Areas of known slab thicknesses are shown on the Drawings. In some areas where wood block flooring previously existed, the concrete thickness is 6.5-inches, such as an area of approximately 38,000 square feet in the southeastern portion of Building 112A. Other historic areas of wood block floor covering were previously removed in the rest of the building and replaced with predominantly concrete overlay; in some areas, the

overlay is asphalt. Steel tracks are embedded in the floor slab throughout the former building areas. Transite piping is present in some areas of former facility electrical substations.

There are several equipment foundation pits ranging from 4 to 70 feet in depth. Several foundations for former equipment and concrete pipe ducts are also present at the Site. CONTRACTOR shall demolish each structure and all contents to a depth of 10 to 12 feet Below Grade as shown on the Drawings. The remaining deeper portions of these structures can remain in place per the requirements of the Contract Documents. There are no known basements present. Selected historical facility Drawings are included in Appendix A.

CONTRACTOR shall apply water or employ other dust and odor control measures during demolition to prevent airborne dust or odors from leaving the Site property boundary, in accordance with SCAQMD regulations and Section 01501 – Dust Control. ENGINEER will evaluate the conditions at the time of demolition and determine adequacy of CONTRACTOR'S dust or odor control measures. Demolition procedures or dust and odor control measures may have to be altered by CONTRACTOR based on ENGINEER'S observations of the effectiveness of such measures. ENGINEER has the authority to stop Work until such measures are improved, or additional or more effective measures are employed. ENGINEER may also stop Work when wind speed exceeds 10 miles per hour.

Specific demolition activities include the following:

A. Slabs and Pavements

CONTRACTOR shall demolish all slabs and pavements, including railroad tracks and ties present on the Site as shown on the Drawings, except those areas that are designated for protection. CONTRACTOR shall segregate railroad tracks and ties from slabs and pavements. Portions of the slabs impacted with PCBs are shown on the Drawings and will be delineated at the Site by ENGINEER. CONTRACTOR shall saw-cut or break, remove and direct-load or handle separately PCB-impacted slab areas designated for off-Site disposal as a TSCA hazardous waste and TSCA bulk remediation waste from those designated for on-Site reuse as Restricted Use fill. Upon commencing with Slab and Pavements demolition, CONTRACTOR shall initially remove and direct-load for off-Site disposal all PCB-impacted concrete slabs with concentrations greater than 50 mg/kg in all affected Phase Areas. CONTRACTOR shall then remove and direct-load for off-Site disposal all PCB-impacted concrete slabs with concentrations greater than 3.5 mg/kg but less than 50 mg/kg in all affected Phase Areas. PCB-impacted concrete with concentrations greater than 1 mg/kg but less than 3.5 mg/kg shall remain in place prior to pulverizing per the requirements of Section 02351, and until soil hot spot excavation Areas 4a and 4b are complete and ready for backfilling. CONTRACTOR shall then pulverize concrete with PCB concentrations greater than 1 mg/kg, but less than 3.5 mg/kg for direct placement as Restricted Use fill in soil hot spot areas 4a and 4b. OWNER may elect to direct-load Restricted Use fill concrete for off-Site disposal per the Owner-Option item as stated in the Bid Form. If the Owner-Option is selected, CONTRACTOR shall only size concrete for purposes of removal and handling instead of pulverizing for placement as Restricted Use fill. Remaining concrete and asphalt slabs and pavements not containing COPCs shall be demolished and concrete and

asphalt debris shall be placed in separate stockpiles as specified in Section 02114 – Soil and Waste Stockpiling. Concrete with PCB concentrations less than 1 mg/kg shall be crushed to the gradations as specified in Section 02351 – Backfilling and Grading, and reused on-Site as Unrestricted Use fill. Concrete with PCB concentrations greater than 1 mg/kg, but less than 3.5 mg/kg shall be pulverized to the gradations as specified in Section 02351 – Backfilling and Grading, and reused on-Site as Restricted Use Fill. Asphalt debris shall not be crushed and reused as fill on-Site, but shall be recycled or disposed off-Site as specified in Section 02120 – Off-Site Transportation and Disposal.

CONTRACTOR shall perform periodic Work Area Air Monitoring as specified in Section 01900 – Health and Safety Requirements, for potential COPCs in subslab soil, during Slab and Pavements Demolition. CONTRACTOR shall immediately notify ENGINEER of visibly stained soil or noticeable odors in soil encountered during Slab and Pavements Demolition.

B. Former Building Foundations and Footings

Former building foundations and footings constructed of reinforced concrete are present from the Slab Grade down to depths ranging from 7 to 12 feet Below Grade. CONTRACTOR shall expose then demolish and remove all portions of former building foundations and footings as shown on the Drawings. CONTRACTOR shall perform any necessary excavation activities as specified in Section 02110 – Excavation of Contaminated Materials, and stockpile excavation material as specified in Section 02114 – Soil and Waste Stockpiling. CONTRACTOR shall saw-cut or break, remove and handle separately PCB-impacted concrete from structures designated for either off-Site disposal as a TSCA hazardous waste and TSCA bulk remediation waste from those designated for on-Site reuse as Restricted or Unrestricted Use fill. Concrete debris associated with structure demolition shall be transferred to the appropriate stockpile as specified in Section 02114 – Soil and Waste Stockpiling for subsequent Crushing as described in the Specifications. Steel or other debris shall be stockpiled accordingly for recycling or disposal as specified in Section 02120 – Off-Site Transportation and Disposal.

C. Subsurface Pits, Sumps and Structures Extending Less Than 10-Feet Below Grade

CONTRACTOR shall demolish and remove all subsurface pits, sumps, structures and associated piping and appurtenances located less than 10-feet Below Grade in their entirety as shown on the Drawings. CONTRACTOR shall not backfill open areas until ENGINEER has inspected the subsurface and sampled the underlying area for purposes of obtaining regulatory closure. Once structure is removed, CONTRACTOR shall notify ENGINEER. CONTRACTOR shall provide reasonable assistance to ENGINEER with sample collection efforts. ENGINEER will require seven working days to obtain confirmation soil analytical results before area can be backfilled. CONTRACTOR shall saw-cut or break, remove and handle separately PCB-impacted concrete from structures designated for either off-Site disposal as a TSCA hazardous waste and TSCA bulk remediation waste from those designated for on-Site reuse as Restricted or Unrestricted Use fill. Concrete debris associated with structure demolition shall be transferred to the appropriate stockpile as specified in Section 02114 – Soil and Waste Stockpiling for subsequent Crushing as

described in the Specifications. Steel or other debris shall be stockpiled accordingly for recycling or disposal as specified in Section 02120 – Off-Site Transportation and Disposal.

D. Subsurface Structures Extending Greater Than 10-Feet Below Grade

CONTRACTOR shall demolish structure and all contents from Slab Grade down to a depth of 10-feet Below Grade as shown on the Drawings. CONTRACTOR shall saw-cut or break, remove and handle separately PCB-impacted concrete from structures designated for either off-Site disposal as a TSCA hazardous waste and TSCA bulk remediation waste from those designated for on-Site reuse as Restricted or Unrestricted Use fill. CONTRACTOR shall remove any residual demolition debris from remaining subsurface portion of structure then perforate base of structure with minimum four-inch diameter openings at a rate of one perforation per every 100 square-feet of structure floor area. Once perforated, CONTRACTOR shall backfill remaining subsurface portions of structure with Pea Gravel as specified in Section 02351 – Backfilling and Grading, from the base of structure to a depth of 10-feet Below Grade. CONTRACTOR shall vibrate Pea Gravel during placement to minimize future settlement. Once backfilled with Pea Gravel, the entire surface of the remaining structure shall then be capped with a six-inch thick layer of Portland cement concrete as specified in Section 02351 – Backfilling and Grading, and as shown on the Drawings. The location and extent of the remaining portions of the subsurface structure shall then be recorded in the Project Record Drawings. Concrete debris associated with structure demolition shall be transferred to the appropriate stockpile as specified in Section 02114 – Soil and Waste Stockpiling, for subsequent Crushing as described in the Specifications. Steel or other debris shall be stockpiled accordingly for recycling or disposal as specified in Section 02120 – Off-Site Transportation and Disposal.

The deeper structures that have been identified for removal only down to 10-feet Below Grade with the remaining deeper portions decommissioned in place include, but are not limited to, the following.

1. A vertical pit (#1FDC) located in former Building 104 measuring approximately 20 feet in width (W) by 25 feet in length (L) by 35 feet deep (D), and an associated utility pit measuring 10 feet W by 10 feet L by 35 feet D. Both concrete pits extend to approximately 30 to 35 feet below the building floor Slab Grade, and the vertical pit contains a hydraulic ram that extends to a depth of 70 feet below the floor Slab. Hydraulic fluids within the hydraulic ram shall be removed and containerized for disposal. The upper portion of the Ram, assembly and appurtenances shall be removed to a depth of 12 – feet Below Grade. The lower portions of the hydraulic ram deeper than 12 - feet Below Grade shall be left in place.
2. A cooling tower water reservoir measuring approximately 20 feet W by 20 feet L by 12 to 16 feet D, and an adjacent Hot Well, in an area located on the southwest boundary of the Site adjacent to Boyle Avenue.

Other specific man-made structures located outside the former building footprints that are proposed for demolition are located south of the railroad track and include a truck scale, and

slabs and footings associated with former Buildings 135, 136 and a Loading Dock located on Parcel 6.

E. Previously Backfilled Subsurface Structures Extending Greater Than 10-Feet Below Grade.

1. Several previously backfilled and decommissioned deeper structures are present at the Site that extend from the Slab Grade to depths greater than 10-feet Below Grade, as shown on the Drawings. CONTRACTOR shall demolish previously backfilled subsurface structures from Slab Grade down to a depth of 10-feet Below Grade. CONTRACTOR shall saw-cut or break, remove and handle separately PCB-impacted concrete from structures designated for either off-Site disposal as a TSCA hazardous waste and TSCA bulk remediation waste from those designated for on-Site reuse as Restricted or Unrestricted Use fill. Demolition debris and fill materials shall be removed from the surface of the remaining structure down to 10-feet Below Grade then CONTRACTOR shall cap the entire remaining surface of the structure with a minimum six-inch thick layer of Portland Cement Concrete as specified in Section 02351 – Backfilling and Grading and as shown on the Drawings. The remaining portions of the subsurface structure shall then be recorded in the Project Record Drawings. Concrete debris associated with structure demolition shall be transferred to the appropriate stockpile as specified in Section 02114 – Soil and Waste Stockpiling for subsequent crushing as described in the Specifications. Steel or other debris shall be stockpiled accordingly for recycling or disposal as specified in Section 02120 – Off-Site Transportation and Disposal.

The previously backfilled in place man-made subsurface structures that extend deeper than 10-feet Below Grade include, but are not limited to, the following:

- a. Two deep pits (former Swindell Furnace Pits) located in former Building 110. These pits were formerly backfilled in place and capped with concrete. The circular shaped concrete caps are visible at the Slab Grade in former Building 110. Each pit measures approximately 18 feet in diameter and extends to a depth of approximately 60 to 63 feet below Slab Grade.
- b. One vertical pit (#4 FDC) and an associated Utility Pit, both located in former Building 104. The vertical pit measures approximately 15 feet W by 18 feet L by 37 feet D, with steel sheet piling walls extending down to 47 feet and a hydraulic ram extending from 37 to 61 feet below Slab Grade. The associated Utility Pit measures 10 feet W by 10 feet L by 37 feet D. Based on information provided by a former ALCOA Employee, these pits were decommissioned in 1986 to 1987 and the hydraulic ram was reportedly left in place. The exact locations of these pits are not known but are reported to be located as shown in the Drawings.
- c. Two shallow pits (#1DC and #2DC) located in the northwest corner of former Building 104. These pits were backfilled and capped with concrete. Based on

information provided by a former ALCOA employee, these pits extend to a depth of about 12 feet below the Slab Grade and the hydraulic rams associated with the pits may extend to about 20 to 24 feet Below Grade. The #1DC unit was decommissioned prior to 1974, and the #2DC unit was decommissioned in about 1974 to 1975. Documentation regarding these pits is limited. The exact locations of these pits are not known but are reported to be located as shown in the Drawings.

F. Utilities and Pipelines

CONTRACTOR shall remove all utilities and pipelines existing at Grade or beneath the floor slab to a depth of 3-feet Below Grade. Remaining or residual contents from utilities and pipelines shall be collected and containerized for disposal by CONTRACTOR as specified in Section 02120 – Off-Site Transportation and Disposal. ENGINEER will sample removed contents for waste disposal profiling purposes. CONTRACTOR shall provide reasonable assistance to ENGINEER with sample collection efforts. Soil excavation necessary to support utility and pipeline removal shall be performed as specified in Section 02110 – Excavation of Contaminated Materials, and stockpiled as specified in Section 02114 – Soil and Waste Stockpiling. CONTRACTOR shall backfill all excavated utility and pipeline trenches as specified in Section 02351 – Backfilling and Grading. ENGINEER will determine if further excavation of material is required by CONTRACTOR during utilities and pipeline removal.

CONTRACTOR shall backfill in place by filling with cement slurry as specified in Section 02351 – Backfilling and Grading, all utilities and pipelines that exist beneath the floor slab at greater than 3-feet Below Grade unless otherwise specified by ENGINEER. These utilities and pipelines include, but are not limited to, sewer lines, pipelines, backfilled storm water lines, electrical conduits, and utility piping. CONTRACTOR shall maintain active storm water conveyance systems to comply with the Site-specific Storm Water Pollution Prevention Plan (SWPPP). CONTRACTOR shall cut and cap all other utilities and pipelines at the property line that extend beyond the property line. CONTRACTOR shall backfill excavations conducted at property line to cut and cap utilities after inspected and approved by ENGINEER. CONTRACTOR shall record details of the locations of all utilities encountered during the Below Grade Demolition Work in the Project Record Drawings as specified in Section 01770 – Contract Closeout.

CONTRACTOR shall provide all necessary labor, equipment, and material to remove transport, and dispose of Transite Pipe in accordance with all federal, state, and local regulations, and standards of the industry, including Asbestos Hazard and Emergency Response Act (AHERA). Work includes required permits, notifications, enclosures, and required air monitoring.

3.04 CRUSHING

- A. All concrete not impacted with COPCs that exceed risk-based cleanup levels, (including concrete with PCB concentrations less than 1 mg/kg, but excluding concrete with PCB concentrations greater than 1 mg/kg, but less than 3.5 mg/kg) shall be crushed on-Site to

the gradations of GREENBOOK Section 200-2.4 or equivalent, for re-use as Unrestricted Use backfill as described in Section 02351 – Backfilling and Grading. CONTRACTOR shall apply dust and noise control measures, perform personal exposure assessments, and other applicable control measures during crushing, stockpiling and backfilling.

- B. Work includes all permitting associated with crusher operations, handling, stockpiling and any necessary stockpile relocation or consolidation, concrete sizing to maximum dimensions of two-feet by two-feet by one-foot to facilitate crushing activities, operation of scales for measurement of crushed materials, removal or cutting of reinforcement steel or rebar within one-inch of sized concrete surfaces, crushing, and stockpiling management. Crushing also includes placement and compaction of Aggregate Base into open excavation areas as backfill as described in Section 02351 – Backfilling and Grading, and as shown on the Drawings. Steel or other debris (including asphalt debris) shall be stockpiled accordingly for recycling or disposal as specified in Section 02120 – Off-Site Transportation and Disposal.
- C. To eliminate potential cross-contamination of Unrestricted Use crushed concrete (that containing PCB concentrations less than 1 mg/kg) with Restricted Use crushed concrete (that containing PCB concentrations greater than 1 mg/kg), CONTRACTOR shall thoroughly decontaminate all handling and sizing equipment or provide separate, dedicated handling and sizing equipment at CONTRACTOR'S expense for processing of Unrestricted and Restricted Use concrete materials. If CONTRACTOR elects to not provide separate, dedicated equipment, CONTRACTOR cannot crush or handle Unrestricted Use concrete after crushing or handling Restricted Use concrete, until CONTRACTOR thoroughly decontaminates the crushing and handling equipment then performs wipe sample testing for the presence of PCBs on each component of the crushing and handling equipment. CONTRACTOR shall provide results to ENGINEER and CONTRACTOR cannot proceed with additional crushing or handling of Unrestricted Use concrete until written approval is provided by ENGINEER.

3.05 PULVERIZING

- A. All concrete impacted with PCBs with concentrations greater than 1 mg/kg, but less than 3.5 mg/kg shall be pulverized to the gradations described in Section 02351 – Backfilling and Grading, and placed as Restricted Use fill where indicated on the Drawings.
- B. CONTRACTOR shall not use handling and sizing equipment on Unrestricted Use concrete materials after performing concrete pulverizing, handling and placement until all equipment is thoroughly decontaminated and wipe sample-tested as described above.
- C. Pulverizing also includes removal or cutting of reinforcement steel or rebar within one-inch of sized concrete surfaces, applicable dust controls, equipment decontamination, and materials management, including placement and compaction of pulverized concrete into open excavation areas as backfill as described in Section 02351 – Backfilling and

Grading, and as shown on the Drawings. Steel or other debris (including asphalt debris) shall be stockpiled accordingly for recycling or disposal as specified in Section 02120 – Off-Site Transportation and Disposal.

3.06 DISPOSAL

- A. CONTRACTOR shall dispose of removed or demolished materials at OWNER-approved off-Site facilities in accordance with Section 02120 – Off-Site Transportation and Disposal.
- B. Burying or burning of trash and debris on-Site will not be permitted.

3.07 CLEANUP

- A. Maintain a clean and orderly Site. CONTRACTOR shall clean up Site as required in accordance with Section 01500 – Temporary Facilities and Site Controls, during and at the completion of Below Grade Demolition and Soil Excavation Work. CONTRACTOR shall dispose of waste and trash generated by CONTRACTOR in a safe, acceptable manner at CONTRACTOR'S expense.
- B. Decontaminate all equipment that came into contact with COPCs prior to using for another purpose or leaving the Site as specified in Section 01500 – Temporary Facilities and Site Controls.
- C. Conduct final maintenance and cleaning of the SWPPP storm water control measures prior to demobilization. Removal and disposal of the SWPPP measures will be performed by others.

PART 4 – PAYMENT

- A. Demolition of Slabs and Pavements will be measured as a Lump Sum for each Phasing Area as shown on the Drawings. Payment for Slabs and Pavements will be made at the contract unit price (Lump Sum) as stated in the Bid Form for each Phasing Area and shall include full compensation for all CONTRACTOR materials, equipment, labor and supplies as required for Demolition of Slabs and Pavements as described in Section 02050 – Demolition.
- B. Demolition of Foundations and Footings will be measured as a Lump Sum for each Phasing Area as shown on the Drawings. Payment for Foundations and Footings will be made at the contract unit price (Lump Sum) as stated in the Bid Form for each Phasing Area and shall include full compensation for all CONTRACTOR materials, equipment, labor and supplies as required for Demolition of Foundations and Footings as described in Section 02050 – Demolition.

- C. Demolition of Subsurface Pits, Sumps, and Structures Extending Less Than 10-Feet Below Grade will be measured as a Lump Sum for each Phasing Area as shown on the Drawings. Payment for Subsurface Pits, Sumps, and Structures Extending Less Than 10-Feet Below Grade will be made at the contract unit price (Lump Sum) as stated in the Bid Form for each Phasing Area and shall include full compensation for all CONTRACTOR Work as required for Demolition of Subsurface Pits, Sumps, and Structures Extending Less Than 10-Feet Below Grade as described in Section 02050 – Demolition.
- D. Demolition of Subsurface Pits, Sumps, and Structures Extending Greater Than 10-Feet Below Grade will be measured as a Lump Sum for each Phasing Area as shown on the Drawings. Payment for Subsurface Pits, Sumps, and Structures Extending Greater Than 10-Feet Below Grade will be made at the contract unit price (Lump Sum) as stated in the Bid Form for each Phasing Area and shall include full compensation for all CONTRACTOR Work as required for Demolition of Subsurface Pits, Sumps, and Structures Extending Greater Than 10-Feet Below Grade as described in Section 02050 – Demolition.
- E. Demolition of Previously Backfilled Subsurface Structures Extending Greater Than 10-Feet Below Grade will be measured as a Lump Sum for each Phasing Area as shown on the Drawings. Payment for Previously Backfilled Subsurface Structures Extending Greater Than 10-Feet Below Grade will be made at the contract unit price (Lump Sum) as stated in the Bid Form for each Phasing Area and shall include full compensation for all CONTRACTOR Work as required for Demolition of Previously Backfilled Subsurface Structures Extending Greater Than 10-Feet Below Grade as described in Section 02050 – Demolition.
- F. Utilities and Pipelines will be measured as a Lump Sum for each Phasing Area as shown on the Drawings. Payment for Utilities and Pipelines will be made at the contract unit price (Lump Sum) as stated in the Bid Form for each Phasing Area and shall include full compensation for all CONTRACTOR Work as required for Utilities and Pipelines as described in Section 02050 – Demolition.
- G. Crushing of concrete debris will be measured as a unit cost (Per Ton) for all Crushing Work, based on daily scale weight print-outs from CONTRACTOR-operated scales integrated into the Crushing equipment. Payment for Crushing will be made at the contract unit price (Ton) and shall include full compensation for all CONTRACTOR Work for Crushing as specified in Section 02050 – Demolition.
- H. Pulverizing of concrete debris will be measured as a unit cost (Per Ton) for all Pulverizing Work, based on PCB-impacted concrete areas with PCB concentrations greater than 1 mg/kg, but less than 3.5 mg/kg as shown on the Drawings. Payment for Pulverizing will be made at the contract unit price (Ton) and shall include full compensation for all CONTRACTOR Work for Pulverizing as specified in Section 02050 – Demolition.

- I. Demolition of Transite Pipe or other ACM wastes as described in Section 02050 – Demolition will not be measured separately. It is considered incidental to Off-Site Transportation and Disposal of Transite Pipe or other ACM wastes as described in Section 02120 – Off-Site Transportation and Disposal.

END OF SECTION

SECTION 02110**EXCAVATION OF CONTAMINATED MATERIALS****PART 1 – GENERAL****1.01 SCOPE**

This section includes the following:

- A. Excavation of contaminated material from areas shown on the Drawings.
- B. Placement of the material in either a stockpile area or directly into trucks for off-Site disposal.
- C. Additional excavation, on-Site transportation, and staging as directed by ENGINEER, based on field indications of contamination or analytical results of confirmation samples.
- D. Performance of all Excavation activities in compliance with CONTRACTOR'S Health and Safety Plan, including personal protective equipment (PPE) selection, air monitoring and PPE upgrades, based on CONTRACTOR'S monitoring of Site conditions.

1.02 RELATED REQUIREMENTS

- A. The Drawings, the provisions of the Contract including the General and Supplementary Conditions and the General Requirements apply to the Work of this Section.
- B. Section 01110 – Summary of Work
- C. Section 01501 – Dust Control
- D. Section 01560 – Site Security
- E. Section 01770 – Contract Closeout
- F. Section 02114 – Contaminated Soil and Waste Stockpiling
- G. Section 02120 – Off-Site Transportation and Disposal
- H. Section 02260 – Excavation Support and Protection
- I. Section 02351 – Backfilling and Grading

1.03 DEFINITIONS

Contaminated Materials: Site soil or debris impacted with Constituents of Potential Concern (COPCs).

Incidental Excavation: Excavation of soil, material and debris associated with the removal, exposure or demolition of slabs and pavements; former foundations and footings; subsurface pits, sumps and structures; previously abandoned subsurface structures; and utilities and pipelines. Incidental excavation also applies to soil, material and debris that would otherwise not require excavation based on known COPCs, but requires handling due to proximity with structures identified for removal in Below Grade Demolition Work; or other non-contaminated material located in proximity to Soil Excavation areas that may require excavation for purposes of sidewall or excavation stability.

1.04 SUBMITTALS

- A. Daily Excavation Quantity Summaries: CONTRACTOR shall prepare a summary of estimated excavation quantities at the end of each day that soil excavation is performed. These quantities shall be subject to revision for payment purposes based on subsequent measurements that are more precise, and reviewed by ENGINEER. CONTRACTOR shall submit Daily Excavation Quantity Summaries to ENGINEER on a weekly basis.

Utility location diagrams. CONTRACTOR shall submit utility location diagrams to ENGINEER 48 hours (minimum) prior to the start of any excavation at the Site.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 EXCAVATION OF CONTAMINATED MATERIALS

- A. The initial excavation boundaries for each Excavation Area are shown on the Drawings.
- B. CONTRACTOR is responsible for locating all utilities within or near each excavation area and documenting those locations on the ground and on a diagram submitted to ENGINEER at least 48-hours prior to performance of any excavation. CONTRACTOR is responsible for properly terminating any abandoned utility that is disrupted and providing Northing, Easting, and elevation data so that the terminus can be relocated.
- C. CONTRACTOR shall excavate soil from each Excavation Area shown on the Drawings or as otherwise directed by ENGINEER. CONTRACTOR shall not perform excavation Work unless ENGINEER'S representative is present.
- D. CONTRACTOR shall provide dust and odor control measures in accordance with Section 01501 – Dust Control.
- E. CONTRACTOR shall monitor all excavated soil for volatile organic compounds (VOCs) in accordance with applicable federal, state, and local regulations, standards, and codes including South Coast Air Quality Management District (SCAQMD) Rule 1166, Occupational Safety and Health Administration (OSHA), California Occupational Safety

and Health Administration (Cal/OSHA), Rio Tinto Health, Safety & Environment (HSE) Performance Standards, and CONTRACTOR'S Health and Safety Plan.

- F. CONTRACTOR shall implement measures to limit the entry of storm water to the excavations, such as installation of temporary berms or pumping around the excavation. The methods to be used by CONTRACTOR to minimize impacts from storm water run-on shall be described in the Construction Plan.
- G. After the initial excavation, the area will be inspected by ENGINEER to determine if the excavation needs to be increased in size or depth. Further required excavation by CONTRACTOR will only be performed at the direction of ENGINEER.
- H. If workers are to enter excavations 4 feet Below Grade surface or greater, access ramps or other means of egress must be provided by CONTRACTOR. If workers are to enter excavations 5 feet Below Grade surface or greater, CONTRACTOR shall provide shoring, benching or sloping in accordance with all applicable federal, state, and local regulations. CONTRACTOR shall segregate any soil removed for benching, ramping, or sloping areas that are outside the initial extent of excavation and stockpile and manage this soil within the excavation separately from COPC-impacted soil, or in accordance with Section 02114 – Soil and Waste Stockpiling. ENGINEER will perform sampling and analysis of sloping and benching material to determine its final disposition within seven calendar days of its generation. If directed by ENGINEER, CONTRACTOR shall place and compact benching and sloping material within the excavation in accordance with 02351 – Backfilling and Grading, at no additional cost to OWNER. If directed by ENGINEER, CONTRACTOR shall dispose of this material off-Site in accordance with Section 02120 – Off-Site Transportation and Disposal.
- I. CONTRACTOR shall provide all shoring, bracing, benching, or sloping required to protect adjacent structures and traffic as described in Section 02260 – Excavation Support and Protection.
- J. Excavated COPC-contaminated soil shall be stockpiled in such a manner that prevents contamination of or mixture with uncontaminated soil, as described in Section 02114 – Soil and Waste Stockpiling.
- K. After completion of hot spot soil excavation and confirmation sampling in Area 4a but prior to backfilling, CONTRACTOR shall cap the entire excavation floor area with a six-inch thick layer of Portland cement concrete as specified in Section 02351 – Backfilling and Grading, and shown on the Drawings. The remaining area shall be backfilled with Restricted Use PCB-impacted concrete as directed by ENGINEER, then covered with an identifier layer and an Interim Cap, per United States Environmental Protection Agency (U.S. EPA) requirements. The location and extent of the concrete cap shall then be recorded in the Project Record Documents.
- L. The location and horizontal and vertical extent of each soil Excavation Area shall be recorded in the Project Record Documents.

3.02 INCIDENTAL EXCAVATION TO REMOVE STRUCTURES

- A. CONTRACTOR shall perform Incidental Excavation as necessary to expose or remove structures identified for demolition as shown on the Drawings.
- B. CONTRACTOR shall perform all requirements necessary for Excavation of Contaminated Materials during performance of Incidental Excavation. If SCAQMD Rule 1166 monitoring indicates Incidental Excavation material may contain COPCs or if directed by ENGINEER, CONTRACTOR shall handle and stockpile the material in accordance with Section 02114 – Soil and Waste Stockpiling.

3.03 SOIL SAMPLING

- A. ENGINEER is responsible for soil profiling and the collection and analysis of soil samples to identify potential environmental impacts.
- B. CONTRACTOR shall provide equipment and personnel available to assist ENGINEER with soil sample collection in excavations 4 feet deep or greater. This equipment is anticipated to consist of a backhoe or equivalent.
- C. CONTRACTOR shall anticipate a three calendar day turn around time once received by the testing laboratory, for the results of soil samples collected from the base and sidewalls of the Excavation Areas shown on the Drawings. During this period, CONTRACTOR shall not backfill the subject portion of the excavation, and shall maintain all necessary Site controls. Based on the results of the soil sample analysis, ENGINEER may direct CONTRACTOR to perform additional excavation or to backfill and restore the excavation area. No payment will be made for standby or delay claims while waiting for soil sample results.

3.04 PROTECTION OF EXISTING FACILITIES

- A. CONTRACTOR shall be responsible for locating existing utilities and protecting existing structures to be left in place, including roads, building foundations, buried utilities, and other above ground and buried structures.
- B. CONTRACTOR shall not begin excavation at the Site without written authorization from ENGINEER. This authorization will verify that the extent of excavation has been marked in the field and that CONTRACTOR has submitted documentation to ENGINEER that indicates that CONTRACTOR has obtained clearance for potential buried utilities within each excavation area. If known utilities are present in the vicinity of the excavation, CONTRACTOR will indicate and verify that they have been marked by the appropriate utility, and that markings are still visible in the field. CONTRACTOR shall also contact the owner(s) of utilities identified by CONTRACTOR to be within the excavation areas and convey any special excavation restrictions obtained from the owner(s) of those utilities to ENGINEER. CONTRACTOR shall comply with these excavation restrictions. CONTRACTOR is responsible for protecting underground

utilities at the Site during completion of the Work and shall repair at its own expense all damage to underground utilities caused by the Work.

- C. Unless otherwise authorized by the OWNER, all utilities are to remain in place in their current alignment and CONTRACTOR shall protect and support them in place during completion of excavation and backfill activities. It is CONTRACTOR'S responsibility to obtain approval from the respective utility companies for protection and support measures and to present such measures for ENGINEER'S approval.
- D. CONTRACTOR shall replace in kind and at its own expenses any Site features shown on the Drawings as to be protected that are damaged by CONTRACTOR during the Work.

PART 4 – PAYMENT

- A. Excavation of Contaminated Material will be measured as a unit cost (per Cubic Yard [CY]) for all Contaminated Material excavated and placed in a stockpile per the requirements of Section 02114 – Soil and Waste Stockpiling. Measurement will be made as calculated in the stockpile location. Contaminated soil stockpile areas shall be surveyed horizontally and vertically, to the nearest 0.1 foot, upon stockpile area construction and prior to any contaminated soil placement. Contaminated soil stockpiles shall be surveyed immediately after completion of contaminated soil placement, to the same tolerance criteria. CONTRACTOR shall remove stockpile cover during final survey, or demonstrate to ENGINEER that no void spaces exist under the cover. Soil volume shall be calculated based on the survey data. Surveying shall be performed as specified in Section 01770 – Contract Closeout. Payment for Excavation of Contaminated Material will be made at the Contract unit price (CY) as stated in the Bid Form Payment for Hot Spot Soil Excavation of PCB-impacted Soil, Metals-impacted Soil, VOC-impacted Soil, and Stoddard Solvent-impacted Soil removed from each Soil Excavation Area and shall include full compensation for all CONTRACTOR Work for Excavation of Contaminated Material as specified in Section 02110 – Excavation of Contaminated Materials, and shown on the Drawings.
- B. Incidental Excavation will not be measured separately. It is considered incidental to expose or remove structures identified for demolition as shown on the Drawings.
- C. Placement of Portland cement concrete cap in base of completed excavation prior to backfilling in Area 4a will not be measured separately. It is considered incidental to Excavation of Contaminated Material, specifically PCB-Impacted Soil.

END OF SECTION

SECTION 02114**SOIL AND WASTE STOCKPILING****PART 1 – GENERAL****1.01 SCOPE**

The Work under this Section covers the requirements for stockpiling materials at the Site. Materials shall be stockpiled pending classification for reuse, additional handling, or disposal.

CONTRACTOR shall supply all materials, equipment, and services required for excavating, loading, hauling, and stockpiling operations.

1.02 RELATED REQUIREMENTS

- A. The Drawings, the provisions of the Contract including the General and Supplementary Conditions and the General Requirements apply to the Work of this Section.
- B. Section 01502 – Storm Water Management
- C. Section 02120 – Off-Site Transportation and Disposal

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION**3.01 MATERIAL SEGREGATION**

- A. Materials shall be segregated for stockpiling based on the results of previous testing or evaluation by ENGINEER. Anticipated categories of material that will be generated on-Site include but are not limited to the following:
 - 1. Incidental Excavation soil.
 - 2. Excavated soil, as based on South Coast Air Quality Management District (SCAQMD) Rule 1166 monitoring results.
 - 3. Polychlorinated Biphenyl (PCB)-impacted hot spot soil excavation.
 - 4. Volatile Organic Compound (VOC)-impacted hot spot soil excavation.
 - 5. Metals-impacted hot spot soil excavation.
 - 6. Total Petroleum Hydrocarbon (TPH)-impacted hot spot soil excavation.

7. Concrete demolition debris containing PCBs less than 1 milligram per kilogram (mg/kg) for on-Site crushing and reuse as Unrestricted Fill.
 8. Concrete demolition debris containing PCBs greater than 1 mg/kg, but less than 3.5 mg/kg for on-Site pulverizing and reuse as Restricted Fill.
 9. Asphalt demolition debris for off-Site recycling.
 10. PCB-impacted concrete and asphalt demolition debris for off-Site waste disposal.
 11. Other demolition debris including piping, equipment, steel, and asbestos-containing material.
 12. Pea Gravel or other backfill material removed during demolition of Previously Backfilled and Decommissioned Structures.
- B. CONTRACTOR shall establish and maintain separate stockpiles for different categories of material and maintain segregation of the materials in the separate stockpiles, as required by ENGINEER.
- C. CONTRACTOR shall direct load all hot spot excavated soil and concrete containing PCBs greater than 50 mg/kg, into hauling vehicles or ENGINEER-approved waste bins for off-site transport and disposal in accordance with Section 02120 – Off-Site Transportation and Disposal. Under no circumstances shall CONTRACTOR stockpile these materials on-Site unless otherwise approved in writing by ENGINEER, and in compliance with the requirements of 40 CFR 761.65.

3.02 MATERIAL PLACEMENT AND STOCKPILE MAINTENANCE

- A. CONTRACTOR shall regularly inspect and maintain stockpiles until the stockpiled material is either transported off-Site, processed through concrete crushing activities, or stockpile is disassembled.
- B. Stockpiles shall be protected from storm water run-on/run-off and shall have effective erosion and sedimentation control features in accordance with Section 01502 – Storm Water Management. All materials placement shall be in accordance with the requirements of the Storm Water Pollution Prevention Plan (SWPPP).
- C. Stockpiles shall be placed on existing asphalt or concrete pavements or slabs, or native soil, and the perimeter or sides shall be bermed and contained with K-rails or other ENGINEER-approved means.
- D. A 10-mil polyethylene liner shall be placed over the existing surface and over the K-rails or perimeter berms to form a basin prior to stockpiling any materials. During the course of the Work, ENGINEER may elect to allow CONTRACTOR to temporarily stockpile certain PCB-impacted materials that are not direct-loaded for disposal, and require

CONTRACTOR to use a 30-mil polyethylene bottom liner or equivalent for all excavated soil, removed concrete, or other materials suspected to contain PCBs greater than 3.5 mg/kg but less than 50 mg/kg, per the requirements of 40 CFR 761.65 c(9).

CONTRACTOR shall assume that excavated soil, removed concrete or other debris suspected to contain PCBs greater than 1 mg/kg, but less than 3.5 mg/kg that is temporarily stockpiled, shall be treated in a manner similar as materials containing PCBs greater than 3.5 mg/kg, unless directed otherwise by ENGINEER. All material stockpiles shall remain covered with weighted 10-mil polyethylene sheeting after each material placement operation and during periods of inactivity.

- E. CONTRACTOR shall take care to minimize damage to plastic sheeting during soil, concrete, material or debris placement and loading activities. CONTRACTOR shall repair or replace damaged plastic sheeting before the end of each work day and immediately upon completion of each material placement or loading event.
- F. Before the end of each work day, CONTRACTOR shall inspect stockpile areas to assure stockpiled material is suitably contained and controlled, and has not come into contact with the adjacent or underlying soil or pavement. CONTRACTOR shall immediately collect all stockpiled material that is observed by CONTRACTOR, OWNER, or ENGINEER to not be contained or controlled and re-stockpile the material per the requirements of this section.
- G. Concrete demolition debris containing PCBs less than 1 mg/kg intended for on-Site crushing, and crushed recycled aggregate piles for use as Unrestricted Fill do not require bottom liners. CONTRACTOR shall not locate any waste bins or construct any stockpiles within 30 feet of perimeter Site property boundaries or as shown on the Drawings. No stockpiles or waste bins are allowed in the northeast parking lot area within 200 feet of any perimeter Site property boundaries or as shown on the Drawings. Maximum stockpile height shall not exceed 25 feet.
- H. CONTRACTOR shall not place any stockpile impacted with COPCs within 10-feet of any adjacent stockpile unless directed by ENGINEER.
- I. CONTRACTOR shall not construct stockpiles in locations that negatively impact existing storm drains, outfalls, or catch basins.
- J. CONTRACTOR shall be responsible for the relocation or moving and re-stockpiling of any waste bins, stockpiles or stockpiled materials that obstruct or hinder Site areas requiring subsequent demolition, excavation or backfilling, at no additional cost to OWNER.
- K. CONTRACTOR shall be responsible for disassembly, removal and proper disposal of stockpile areas and stockpile materials.

3.03 WASTE CLASSIFICATION TESTING

ENGINEER will perform sampling and analysis to classify stockpiled materials, including PCB-impacted soil and concrete intended for removal but still in place, for disposal. ENGINEER will collect waste classification samples within two days of receipt of a written request from CONTRACTOR confirming that either the hot spot area is excavated and stockpiled, or at least 500 cubic yards of stockpiled soil from a larger hot spot area is ready to be sampled.

CONTRACTOR shall profile PCB-impacted soil and concrete shown on the Drawings based on pre-existing characterization data collected by ENGINEER. It is anticipated that PCB-impacted concrete will be encountered during the course of the work that will require analytical testing for waste classification. CONTRACTOR shall anticipate a minimum of seven working days for ENGINEER to test and provide the results of these materials to CONTRACTOR once samples are collected. CONTRACTOR shall anticipate a seven working day turn around time for the results of waste classification samples.

3.04 DISPOSAL

CONTRACTOR shall not dispose of any stockpiled materials until a waste profile is completed, the receiving facility has accepted the material for disposal, and approval has been obtained from ENGINEER. Once materials are profiled and accepted for disposal, CONTRACTOR shall load and ship or otherwise remove stockpiled material from the Site within 14 calendar days. In addition to these requirements, CONTRACTOR shall load and ship all PCB-impacted soil and concrete greater than 3.5 mg/kg off-Site within 30 days of generation. CONTRACTOR shall manage transportation and off-Site disposal of excavated soil and demolition debris, as specified in Section 02120 - Off-Site Transportation and Disposal.

PART 4 – PAYMENT

Soil and Waste Stockpiling will not be measured separately. Stockpiling is considered incidental to excavation, demolition or other material generating and handling activities. There shall be no separate payment for CONTRACTOR or Subcontractor incidentals pursuant to implementation and compliance with the requirements of this Section. Full compensation for all CONTRACTOR implementation and compliance with this Section under this Contract shall be considered as included in the Contract unit or lump sum prices for the various items of the Contract to which the requirements of this Section relate.

END OF SECTION

SECTION 02120**OFF-SITE TRANSPORTATION AND DISPOSAL****PART 1 – GENERAL****1.01 SCOPE**

- A. CONTRACTOR shall be responsible for the removal and disposal of all wastes generated at the Site in association with the Work and all materials remaining on-Site at the end of the Work. Burying or burning of trash and debris on Site will not be permitted.
- B. CONTRACTOR shall be responsible for making all arrangements for acceptance of waste generated during demolition of existing Site improvements and excavation of soil at OWNER-approved disposal facilities. Soils, concrete and other debris impacted with Polychlorinated Biphenyls (PCBs) greater than 1 milligram per kilogram (mg/kg) are considered bulk PCB remediation waste. Porous wastes impacted with PCBs shall be disposed of in accordance with 40 CFR 761.61(a)(5)(i). Non-porous wastes impacted with PCBs shall be disposed of in accordance with 40 CFR 761.61 (a)(5)(i)(B)(2)(ii) and 761.61 (a)(5)(i)(B)(2)(iii), depending on their concentrations. Cleanup wastes impacted with PCBs, including non-liquid materials and spent personal protective equipment (PPE), shall be disposed of in accordance with 40 CFR 761.61 (a)(5)(v).
- C. CONTRACTOR shall ensure that all storage, loading, and transportation of waste are in compliance with applicable federal, state, and local transportation regulations.
- D. CONTRACTOR shall be responsible for storing and stockpiling wastes prior to disposal and for transporting wastes to off-Site disposal facilities approved by the OWNER.
- E. CONTRACTOR shall supply all materials, equipment and services required for storage and transportation of wastes associated with the Work.
- F. ENGINEER will be responsible for collecting soil samples for characterizing the waste to determine appropriate off-Site disposal options. PCB-impacted soil and concrete will be characterized by in-situ data collected by ENGINEER prior to and during the course of the Work. CONTRACTOR shall be responsible for waste profiling, manifesting, and other requirements of the receiving facility.
- G. The OWNER or their Designated Representative will be responsible for signing all Hazardous Waste Manifests (hazardous) and Bills of Lading (Non-hazardous). The OWNER will be identified as Generator on all waste-related documents.

1.02 SUBMITTALS

- A. Identification of Waste Transportation Subcontractors: CONTRACTOR shall obtain and submit to ENGINEER letters of commitment from waste transporters agreeing to handle any wastes generated by performance of the Work and shall attach the following

information for each waste transportation company (This information shall be submitted within seven calendar days of a request from ENGINEER):

1. Name and EPA identification number.
 2. A copy of the company's California Department of Transportation license.
 3. Address and telephone number.
 4. Name and telephone number of responsible contact.
 5. List of types and sizes of all transport vehicles and equipment to be used.
 6. A description of proposed transportation methods, schedules and procedures for hauling waste material, including type of vehicles that will be used for each class of waste and frequency of transport.
 7. Any and all necessary permit authorizations for each class of waste transported.
- B. Waste Manifests/Bills of Lading: CONTRACTOR shall prepare a manifest for each load of hazardous waste and Bill of Lading for each non-hazardous waste stream. As specified in Part 3.02, these manifests/Bills of Lading shall be delivered to the OWNER or the OWNER'S Designated Representative for their signature prior to shipment. This information shall be submitted a minimum of 48 hours prior to shipment.
- C. Final Waste Manifest/Bills of Lading Records: CONTRACTOR shall submit completed waste manifest records to ENGINEER within seven calendar days after notification of receipt at the disposal facility. OWNER reserves the right to withhold payment for waste disposal for which the final Waste Manifest/Bills of Lading are not received.
- D. Disposal Log: CONTRACTOR shall create and maintain a log for tracking disposal information for all wastes removed from the Site. The Disposal Log shall be in tabular format and include the following information for each load of material disposed:
1. Waste manifest number.
 2. Date transported from the Site.
 3. Source of the waste (e.g., location).
 4. Date received at disposal facility.
 5. Waste type (e.g. soil, municipal waste, etc.).
 6. Load weight as measured at the disposal facility.
 7. Name of disposal facility.

The CONTRACTOR'S Disposal Log shall be updated and submitted to ENGINEER every seven calendar days prior to the Weekly Progress Meeting and be current up to two working days prior to the meeting.

- E. Disposal Facility Weight Records: CONTRACTOR shall submit copies of all weight records obtained from the disposal facilities. CONTRACTOR shall submit the weight record copies weekly, attached to the Disposal Log described in Paragraph D. OWNER reserves the right to withhold payment for waste disposal for which the final waste manifest/bills of lading are not received.
- F. All metals shall be segregated and shipped directly to a receiving facility for smelting. Notify the receiving facility of the potential Lead and/or PCB content of the metals. Provide letter of acknowledgement to ENGINEER.

1.03 PERMITS AND FEES

CONTRACTOR shall be responsible for obtaining and paying for all permits and fees required for completion of the Work.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 OFF-SITE TRANSPORTATION

- A. CONTRACTOR shall transport wastes to off-Site locations approved by the OWNER.
- B. CONTRACTOR shall only use the transporter(s) identified in CONTRACTOR'S approved submittals for the performance of Work. Any use of substitute or additional transporters must have previous written approval by ENGINEER. CONTRACTOR shall be responsible for any additional costs that may be incurred for utilizing alternate transportation.

3.02 MANIFEST PROCEDURES

- A. CONTRACTOR shall utilize a state-approved manifest system so that wastes can be tracked from generation to ultimate disposal. The manifests must comply with all the provisions of the transportation and disposal regulations. CONTRACTOR shall be responsible for preparing manifests for each load a minimum of 48 hours prior to shipment. If the manifest is acceptable, the OWNER or their Designated Representative will provide the generator number and sign the generator's certification portion of the manifests. If the manifest is not acceptable, CONTRACTOR shall make all corrections at no additional cost to ENGINEER or OWNER.

- B. CONTRACTOR shall be responsible for accurate and timely completion of final manifests. All transporters must sign the appropriate portions of the manifest and must comply with all of the provisions established in state and federal Department of Transportation (DOT) regulations. The disposal facility must sign the appropriate portions of the manifest and return it to CONTRACTOR within 14 calendar days of disposal. OWNER reserves the right to withhold payment for waste disposal for which final manifests are not received.

3.03 SPILL PREVENTION

CONTRACTOR shall utilize appropriate hauling and transport vehicles and operating practices to prevent spillage or leakage of materials from occurring on-Site, off-Site, or en-route to associated disposal facilities.

3.04 CONTAMINATION PREVENTION

- A. CONTRACTOR shall inspect all disposal loads to verify shipments are securely covered and contained prior to leaving the Site.
- B. CONTRACTOR shall prevent Site materials from being tracked off-Site onto public right-of-ways. CONTRACTOR shall be responsible to assure thorough transport vehicle decontamination and inspections are performed before transportation vehicles leave the Site. All vehicles leaving Work areas shall be inspected by CONTRACTOR to ensure that no soil, concrete, or debris adheres to its wheels or exterior. At a minimum, CONTRACTOR shall brush off and remove any loose waste material from vehicle exterior and tires prior to any vehicle departing the Site. Any tracked soil, concrete or debris present in public right-of-ways shall be immediately collected and transferred to the CONTRACTOR'S stockpile or waste staging area at no additional expense to OWNER.
- C. CONTRACTOR shall inspect daily the off-Site roadways adjacent to Site ingress/egress, and shall also inspect regularly along the designated routes into and out of the City of Vernon that any hauling vehicles take from the Site to the disposal destination to ensure that no leakage or tracking of mud or soil, concrete, debris or other materials has occurred. If contaminated or other materials resulting from leakage or tracking are observed in adjacent City right-of-ways or along the designated roadways, CONTRACTOR shall immediately notify ENGINEER and immediately clean the area at CONTRACTOR'S expense and modify procedures as necessary to prevent recurrence.
- D. CONTRACTOR shall be responsible for any and all actions necessary to remedy situations involving materials spilled in transit or mud and dust-tracked off-Site. This cleanup shall be accomplished at the CONTRACTOR'S expense.

3.05 HAULING AND DISPOSAL SCHEDULE

- A. CONTRACTOR'S schedule shall be compatible with waste stockpiling space limitations, excavation production and PCB-impacted concrete removal rates, the availability of equipment and personnel for material handling operations, the availability of hauling vehicles, and any City of Vernon requirements as related to hauling vehicles, hours of operation, and haul routes in City right-of-ways.
- B. CONTRACTOR shall coordinate the schedule for truck or other transportation vehicle arrivals at the Site and at the disposal facility within designated hours of operation, and to meet the approved project schedule.
- C. Slowing or stopping of excavation or concrete removal Work by CONTRACTOR for reasons of lack of transportation, availability of transportation vehicles or shipping containers will not be acceptable.
- D. Loading and off-Site shipment of soil, concrete, wastes or other debris shall be limited to the hours of 6:00 a.m. to 6:00 p.m., Monday through Friday, or as specified and approved by ENGINEER. Any vehicle loaded after receiving facility hours of operation shall remain parked at the Project Site in a designated area of the Site until such time as the vehicle may reasonably proceed to the designated receiving facility.
- E. CONTRACTOR procedures for hauling and disposal of Transite piping, and any other asbestos containing material (ACM) wastes, shall comply with 40 CFR 61, Subpart M, and State, Regional, and Local standards.

3.06 COMBINATION OF WASTES

CONTRACTOR shall not combine materials from other projects with materials from the Site, unless otherwise approved by ENGINEER in advance. It is acceptable to combine drummed materials from the Pechiney Site with other project Site drummed materials if the hauling vehicle is transporting a less than full load of drummed materials from the Pechiney Site to the same receiving facility and the drummed contents are maintained separately.

3.07 QUANTITY RECORDS

CONTRACTOR shall create and maintain a Disposal Log as previously described in Part 1.02.

TRUCK ROUTES AND STAGING AREAS

- A. CONTRACTOR shall utilize only truck Site access routes as shown on the Drawings. Vehicles shall not travel on other alternate routes without prior authorization from the City of Vernon. CONTRACTOR shall follow designated routes specified in the Hazardous Materials Transportation Plan, AMEC, 2012 for all PCB-impacted soil and concrete wastes transported off-Site.

- B. CONTRACTOR shall schedule and stagger all trucks and material deliveries to minimize on-Site and off-Site congestion and to prevent accidents. CONTRACTOR shall stage all off-Site transportation vehicles in their designated Truck Staging Areas.
- C. CONTRACTOR'S transportation vehicles shall not be present on public roadways at the Site between the hours of 7:00 p.m. and 5:00 a.m. Direct-loading of trucks on active public roadways is strictly prohibited.

PART 4 – PAYMENT

Off-Site Transportation and Disposal includes all Work associated with disposal of the wastes generated from the Work. Work includes, but is not limited to, profiling, manifesting, encapsulation as necessary, loading, hauling truck cleaning and decontamination, transporting, and disposing of the waste generated as specified in Off-Site Transportation and Disposal. Work does not include waste generated by the CONTRACTOR or other wastes unless otherwise noted. Unit pricing shall include Federal, State and Local taxes where applicable.

Measurement will be based on units (Tons, Cubic Yards, Gallons) of materials shipped off-Site for disposal, as applicable, as determined by the receiving facility. Payment will be based on the respective unit prices provided in the Bid Form for each waste category as described below.

- A. Payment for Off-Site Transportation and Disposal will be based on the Contract unit price listed under Bid Items 16.1 through 16.24 and will be full compensation for CONTRACTOR'S Work for Off-Site Transportation and Disposal.

Item 16.1 – PCB-Impacted Soil (Non-TSCA < 50 mg/kg) includes all soil generated that requires landfill disposal.

Item 16.2 – PCB-Impacted Soil (TSCA > 50 mg/kg, but less than 1000 mg/kg) includes all soil generated that requires landfill disposal.

Item 16.3 – PCB-Impacted Soil (TSCA > 1000 mg/kg) includes all soil generated that requires landfill disposal.

Item 16.4 – VOC-Impacted Soil (Non-Hazardous) includes all soil generated that requires landfill disposal. VOCs known to exist at the Site and their respective Non-Hazardous thresholds include PCE < 14 mg/kg, TCE < 10 mg/kg, Vinyl Chloride < 4 mg/kg.

Item 16.5 – VOC-Impacted Soil (non-RCRA Hazardous [California-Hazardous]) includes all soil generated that requires landfill disposal. VOCs known to exist at the Site and their respective non-RCRA Hazardous [California-Hazardous] thresholds include PCE > 14 mg/kg, TCE > 10 mg/kg, Vinyl Chloride > 4 mg/kg.

- Item 16.6 – Metals-Impacted Soil (Non-Hazardous) includes all soil generated that requires landfill disposal. Known metals to exist at the Site and their respective Non-Hazardous thresholds include Arsenic < 50 mg/kg, Lead < 50 mg/kg, Chromium < 50 mg/kg, Copper < 250 mg/kg, and Zinc < 2,500 mg/kg. CONTRACTOR shall provide unit cost for disposal of waste containing PCBs, but is characterized as non-TSCA waste.
- Item 16.7 – Metals-Impacted Soil (non-RCRA Hazardous [California-Hazardous]) includes all soil generated that requires landfill disposal. Known metals to exist at the Site and their respective non-RCRA Hazardous [California-Hazardous] thresholds include Arsenic > 50 mg/kg, Lead > 50 mg/kg, Chromium > 50 mg/kg, Copper < 250 mg/kg, Zinc < 2,500 mg/kg.
- Item 16.8 – Stoddard Solvent Impacted Soil (Non-Hazardous) includes all soil that requires landfill disposal.
- Item 16.9 – TPH-Impacted Soil (Non-Hazardous) includes all soil that requires landfill disposal.
- Item 16.10 – PCB-Impacted Water (Non-TSCA < 5 mg/L) includes all water generated, including recovered decontamination water, or encountered that requires disposal or additional treatment.
- Item 16.11 – PCB –Impacted Water (TSCA > 5 mg/L) includes all water generated, including recovered decontamination water, or encountered that requires disposal or additional treatment.
- Item 16.12 – VOC-Impacted Water (Non-Hazardous) includes all water generated or encountered that requires disposal or treatment. VOCs known to exist at the Site and their respective Non-Hazardous thresholds include PCE < 0.7 mg/l, TCE < 0.5 mg/l, and Vinyl Chloride < 0.2 mg/l.
- Item 16.13 – VOC-Impacted Water (Hazardous) includes all water generated or encountered that requires disposal or treatment. VOCs known to exist at the Site and their respective Hazardous thresholds include PCE > 0.7 mg/l, TCE > 0.5 mg/l, Vinyl Chloride > 0.2 mg/l.
- Item 16.14 – Metals-Impacted Water (Non-Hazardous) includes all water generated or encountered that requires disposal or treatment. Known metals to exist at the Site and their respective Non-Hazardous thresholds include Arsenic < 5 mg/l, Lead < 5 mg/l, Chromium < 5 mg/l, Copper < 25 mg/l, and Zinc < 250 mg/l.
- Item 16.15 – Metals-Impacted Water (Hazardous) includes all water generated or encountered that requires disposal or treatment. Known metals to exist at

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the Site and their respective Hazardous thresholds include Arsenic > 5 mg/l, Lead > 5 mg/l, Chromium > 5 mg/l, Copper > 25 mg/l, Zinc > 250 mg/l.

Item 16.16 – Asphalt Debris Off-Site Recycle includes all asphalt removed during demolition of roadways, slabs and pavements, excluding asphalt containing PCBs > 3.5 mg/kg for off-Site recycling, or disposal as solid waste.

Item 16.17 – PCB-Impacted Concrete or Asphalt debris (TSCA bulk PCB Remediation Waste, PCBs > 3.5 mg/kg, but < 50 mg/kg) includes all PCB-impacted concrete slabs, pavements, foundations, footings, pits and sumps removed requiring landfill disposal.

Item 16.18 – PCB-Impacted Concrete or asphalt debris (TSCA Hazardous Waste, PCBs > 50 mg/kg, but < 1,000 mg/kg) includes all PCB-impacted concrete slabs, pavements, foundations, footings, pits and sumps removed requiring landfill disposal.

Item 16.19 – PCB-Impacted Concrete or asphalt debris (TSCA Hazardous Waste, PCBs > 1,000 mg/kg) includes all PCB-impacted concrete slabs, pavements, foundations, footings, pits and sumps removed requiring landfill disposal.

Item 16.20 – Transite piping, ACM waste (Asbestos Containing Material). Off-Site Transportation and Disposal of Transite Piping or other ACM wastes.

Item 16.21 – Hydraulic Oil includes oil removed from deep hydraulic ram that requires disposal as a non-PCB-Containing liquid.

Item 16.22 – Hydraulic Oil removed from deep hydraulic ram that requires disposal as a PCB –Containing liquid (PCBs < 50 mg/l).

Item 16.23 – Owner Option disposal for TSCA items (TSCA > 1.0 mg/kg, but < 3.5 mg/kg)

Item 16.24 – Railroad Ties

- B. There shall be no separate payment for CONTRACTOR'S implementation and compliance with the other requirements of this Section.

END OF SECTION

SECTION 02260**EXCAVATION SUPPORT AND PROTECTION****PART 1 – GENERAL****1.01 SUMMARY**

The Work under this Section includes furnishing all labor, materials, appliances, tools, equipment, transportation, services, and supervision required for designing, furnishing, installing, maintaining, and removing mechanical excavation support systems, and for the protection and restoration of adjacent structures, including repair of any settlement-related damage. The CONTRACTOR is responsible for all permits, notifications and inspections associated with Excavation Support and Protection.

1.02 RELATED REQUIREMENTS

- A. The Drawings, the provisions of the Contract including the General and Supplementary Conditions and the General Requirements apply to the Work of this Section.
- B. Section 02351 – Backfilling and Grading.

1.03 APPLICABLE STANDARDS AND SPECIFICATIONS

- A. Regulatory requirements which govern the Work of this Section include, but may not be limited to, the following governing codes:
 - 1. California Code of Regulations, Title 8, Chapter 4, Subchapter 4 — Construction Safety Orders, and Subchapter 19 — Trench Construction Safety Orders.
 - 2. California Code of Regulations, Title 24, Part 2, California Building Code, Chapter 33 and Appendix Chapter 33, and Structural Chapters 18 and 18A.
 - 3. Excavations, regardless of depth, shall comply fully with the requirements of Sections 3301.2, 3301.2a, and 3301.3 of the California Building Code.

1.04 SUBMITTALS

- A. The CONTRACTOR shall submit an Excavation Protection Plan, sealed and signed by a professional civil engineer currently registered with the State of California. The Excavation Protection Plan shall provide a detailed plan for supporting and/or sloping excavation sidewalls during the Work to prevent damage to existing buildings and utilities, support traffic on adjacent roadways, and to protect personnel that enter the excavation during the Work. The approximate depth to groundwater at the Site is 150 feet. In designing excavation protection, CONTRACTOR shall assume that excavations will extend 2 feet below the depths shown on the Drawings. All drawings, calculations,

and test reports utilized to develop the Excavation Protection Plan shall be included with the submittal.

- B. The Excavation Protection Plan shall be consistent with all applicable regulations including the Cal/OSHA Construction Safety Orders.
- C. The Excavation and Protection Plan shall include the proposed method for penetration of utilities into the excavation.
- D. Design excavation support systems to support earth pressures, utility loads, equipment, applicable traffic and construction loads, and other surcharge loads in a manner which will allow the safe and expeditious completion of the Work without movement or settlement of the ground and in a manner which will prevent settlement of and damage to, or movement of, adjacent buildings, structures, utilities, or other facilities during the various stages of construction. Include evaluation of the effects of flooding and dewatering of excavation.

PART 2 – PRODUCTS

2.01 EQUIPMENT AND FACILITIES

- A. The CONTRACTOR shall furnish all tools, equipment, devices, appurtenances, facilities, and services for the construction and removal of excavation support systems as indicated in the Excavation Protection Plan.

2.02 MATERIALS

- A. General: Materials for excavation support systems may be new or used, provided they are sound and free from strength-impairing defects.

PART 3 – EXECUTION

3.01 INSTALLATION REQUIREMENTS

- A. Install all excavation support systems required to ensure the safety and preservation of workers and to protect existing improvements. Excavation support systems shall be consistent with the Excavation Protection Plan.

3.02 INSPECTION OF EXCAVATION SLOPING OR MECHANICAL SUPPORT SYSTEMS

- A. If the ENGINEER or the licensed engineer whose name and stamp appear on the Excavation Protection Plan determines that excavation sloping constructed by the CONTRACTOR does not comply with the Excavation Protection Plan, the CONTRACTOR shall improve the excavation sloping at no extra cost to the OWNER.

- B. Prior to excavating soil within 50 feet of a mechanical support system, the licensed engineer whose name and stamp appears on the Excavation Shoring and Support Plan shall confirm in writing that the mechanical support system has been installed in accordance with the Excavation Protection Plan.
- C. If the ENGINEER or the licensed engineer whose name and stamp appear on the Excavation Protection Plan determines that an existing support system installed by the CONTRACTOR does not comply with the Excavation Protection Plan, the CONTRACTOR shall remediate or reinstall the support system at no extra cost to the OWNER prior to excavating soil within 50 feet of the mechanical shoring systems.

3.03 REMOVAL OF EXCAVATION SUPPORT SYSTEMS

- A. If removal is required wholly or in part, CONTRACTOR shall perform such removal in a manner that will not disturb or damage adjacent buildings, structures, construction, or utilities. CONTRACTOR shall fill voids immediately with Controlled Low-Strength Material (CLSM) or with approved backfill compacted to the relative compaction for the location as specified in Section 02351 – Backfilling and Grading.

3.04 RESTORATION

- A. CONTRACTOR shall restore, at its own expense, existing structures damaged by its excavation activities to conditions equivalent to those prior to the start of Work. This shall include repairing all settlement-related damage.

PART 4 – PAYMENT

- A. Measurement of installation, maintenance, and removal of mechanical shoring or bracing to support excavation of Below Grade Demolition and Soil Excavation Work as shown on the Drawings will be based on square feet of Excavation Support and Protection in a vertical plane. Payment for Excavation Support and Protection will be based on the unit price provided in the Bid Form and will be full compensation for all CONTRACTOR Work for Excavation Support.

END OF SECTION

SECTION 02351**BACKFILLING AND GRADING****PART 1 – GENERAL****1.01 SCOPE**

- A. This Section covers the requirements for the import, placement, and testing of fill materials in excavations performed as a part of the Work. This Section also covers placement and grading of fill materials to accommodate the final elevations shown on the Drawings.
- B. CONTRACTOR shall supply all materials, equipment, and services required for grading, excavating, loading, hauling, backfilling, and compacting operations.
- C. All excavations and any test trenches performed as a part of the Work shall be backfilled by CONTRACTOR.
- D. The backfill material used to meet the final elevations shown on the Drawings shall consist of recycled aggregates generated on-Site from crushing or pulverizing of concrete demolition debris. Other backfill materials required for selective backfilling of deeper structures shall be brought to the Site from off-Site sources or recovered from previously backfilled structures on-Site as needed.
- E. The Work under this Section shall include all Work by CONTRACTOR required to load, haul, place, compact and grade backfill material required from on-Site or from off-Site sources, as approved by ENGINEER.
- F. Excavating, pulverizing, filling, backfilling, compacting and grading by the CONTRACTOR during construction shall be performed in a manner and sequence that will minimize multiple handling of soil and fill material.
- G. CONTRACTOR shall maintain all Work areas free from excess dust as specified in Section 01501- Dust Control and avoid causing a hazard or nuisance to others. Dust control shall be performed as the Work proceeds and wherever a dust nuisance or hazard occurs.

1.02 RELATED REQUIREMENTS

- A. Section 01501 – Dust Control
- B. Section 01510 – Mobilization and Demobilization
- C. Section 02050 – Demolition

1.03 RELATED DOCUMENTS AND SPECIFICATIONS

- A. “GREENBOOK” – Standard Specifications for Public Works Construction (2006 Edition).

1.04 SUBMITTALS

- A. CONTRACTOR shall supply to the ENGINEER two cubic feet of material representative of each import backfill material for geotechnical laboratory analysis at least 10 calendar days prior to use at the Site.
- B. CONTRACTOR shall designate a single source for each import backfill material and provide a recent material analysis for each specified material demonstrating conformance with the Specifications. Provide access for ENGINEER to collect samples for chemical analysis for the analytes listed in Part 1.05(D) at least 21 calendar days prior to use at the Site. Anticipate 14 calendar days between ENGINEER’S sampling and receiving testing results. CONTRACTOR shall not deliver any material to the Site until it has been favorably reviewed by ENGINEER.

1.05 QUALITY ASSURANCE

- A. CONTRACTOR shall ensure that the material and workmanship provided are in accordance with the specified requirements.
- B. ENGINEER will inspect placement and compaction of fill.
- C. As directed by ENGINEER, CONTRACTOR shall excavate holes for in-place soil sampling and/or density testing of fill by ENGINEER. CONTRACTOR shall be responsible for all costs for additional inspection and testing resulting from non-compliance with compaction requirements. ENGINEER may perform compaction testing on any lift of backfill material at any time at ENGINEER’S discretion.
- D. Testing Methods:
 - 1. Geotechnical Methods:

Maximum dry density and optimum moisture content of earthen materials shall be determined according to ASTM D1557. In situ density and moisture content shall be determined with a nuclear density meter according to ASTM D2922.

2. Environmental Analytical Methods for Imported Backfill:

Title 22 Metals, U.S. EPA Method 6010 and U.S. EPA Method 7471A

Pesticides/Herbicides, U.S. EPA Method 8081A, U.S. EPA Method 8141A, and U.S. EPA Method 8151A

Semi-volatiles, U.S. EPA Method 8270C

Volatile Organic Compounds, U.S. EPA Method 8260B

TPHg, TPHd, and TPHmo, U.S. EPA Method 8015modified/U.S. EPA Method 3630A

PART 2 – PRODUCTS

2.01 BACKFILL MATERIALS

- A. Crushed Recycled Aggregate: CONTRACTOR shall crush concrete for use as Unrestricted Fill material. Crushed recycled aggregate materials generated from on-Site crushing of concrete demolition debris shall be utilized to backfill foundation and structures removal excavations and hot spot soil removal areas as shown on the Drawings. Crushed recycled Aggregate shall conform to the grading and quality requirements shown in the following tables from GREENBOOK Section 200-2.4. The material shall be uniformly graded and shall conform to one of the following gradations. Once a grading is selected, the grading shall not be changed without ENGINEER'S written approval.

GRADING REQUIREMENTS

Sieve Size	Percentage Passing Sieve	
	Course	Fine
2 in (50.0 mm)	100	---
1-1/2 in (37.5 mm)	85-100	100
3/4 in (19.0 mm)	50-85	85-100
3/8 in (9.5 mm)	---	55-75
No. 4 (4.75 mm)	25-45	35-60
No. 30 (600 µm)	10-25	10-30
No. 200 (75 µm)	2-9	2-9
ASTM C 131 Test Grading	A	B

QUALITY REQUIREMENTS

Test	Requirements
Resistance (R-value)	78 minimum
Sand Equivalent	35 minimum
Percentage Wear	
100 Revolutions	15 maximum
500 Revolutions	52 maximum
The R-value requirement may be waived, provided the material has a Sand Equivalent of 40 or more.	

- B. Pea Gravel: Typical requirements for Pea Gravel conform with “GREENBOOK - Standard Specifications for Public Works Construction (GREENBOOK)” Section 200-1.4 and are outlined below.

GRADING REQUIREMENTS

Sieve Sizes	Percentage Passing No. 4
19.0 mm (3/4")	100
9.50 mm (3/8")	85-100
4.75 mm (#4)	0-30
2.36 mm (#8)	0-10
75 um (No. 200)	0-2

- C. Portland Cement Concrete shall be concrete class 560-C-3250 per the GREENBOOK specifications Section 201.
- D. CLSM shall have a consistency that will result in a flowable product at the time of placement which does not require manual means to move it into place. CLSM ingredients shall include, water, Portland Cement, fine aggregate, and any admixtures that complies with all ASTM and GREENBOOK standards and specifications. Maximum aggregate size shall be 3/8-inch and the 3/8-inch aggregate shall comprise no more than 30 percent of total aggregate content.
- E. Existing Site Backfill: CONTRACTOR at their discretion shall reuse Site backfill materials that originated from the demolition of Previously Backfilled and Decommissioned Structures, only if the material is granular and free of COPCs, with ENGINEER’S prior approval.
- F. Imported Structural Fill: Only with approval of ENGINEER shall CONTRACTOR import clean structural fill for use in Backfilling and Grading Work. Imported Structural Fill shall meet the general specification outlined below.

AGGREGATE GRADING REQUIREMENTS

Sieve Sizes	Percentage Passing	
	Operating Range	Contract Compliance
2"	100	100
1 1/2"	90-100	87-100
1"	—	—
3/4"	50-85	45-90
No. 4	25-45	20-50
No. 30	10-25	6-29
No. 200	2-9	0-12

QUALITY REQUIREMENTS

Test	Operating Range	Contract Compliance
Resistance (R-Value)	—	78 Min.
Sand Equivalent	25 Min.	22 Min.
Durability Index	—	35 Min.

Liquid Limit of less than 35;
Plasticity Index and Expansion Index of less than 30; and
Free of any detrimental quantity of deleterious material.

- G. Pulverized Concrete shall be sized for use as a Restricted Use Fill and treated as an open graded aggregate. Typical particle size after pulverizing shall range between 3 inches and 5 inches. ENGINEER will inspect gradations of pulverizing periodically to ensure this particle size range is met by CONTRACTOR.

PART 3 – EXECUTION**3.01 PROTECTION OF EXISTING FACILITIES**

- A. CONTRACTOR shall be responsible for protection of existing structures, sidewalks, pavements, utilities, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations on neighboring properties or within the property, shown on the Drawings to be protected.

3.02 PLACEMENT AND COMPACTION

- A. CONTRACTOR shall place and compact backfill in excavations promptly, but not before completing the following:
1. Surveying locations of remaining underground utilities or structures for Project Record Documents.

2. Inspecting underground utilities.
 3. Removing trash and debris.
 4. Removing any ponded water.
 5. Removing temporary shoring and bracing, and sheeting.
 6. Receiving approval from ENGINEER that any required soil confirmation sampling, as specified in Section 02110 – Excavation of Contaminated Materials, has been completed.
- B. CONTRACTOR shall place material in continuous maximum 12-inch thick lifts to meet final elevations within a tolerance of plus or minus 0.1 foot. CONTRACTOR shall plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- C. All fill shall be compacted at a moisture content no more than 3 percent above optimum or 1 percent below optimum and shall meet the following minimum percentages of maximum dry density as determined by ASTM D1557 (Modified Proctor Test):
- | | |
|----------------------------|-----------------------|
| Crushed Recycled Aggregate | 90% |
| Native Soil | 90% |
| Imported Structural Fill | 90% |
| Pea Gravel | Mechanically Vibrated |
| Pulverized Concrete | Mechanically Vibrated |
- D. No compacting shall be done by CONTRACTOR when the material is more than 3 percent greater than the optimum moisture content either from rain, groundwater, or excess application of water. At such times, Work at the area where moisture conditions are unsatisfactory shall be suspended by CONTRACTOR until the previously placed and new materials have dried sufficiently to permit proper compaction. In order to expedite backfilling of critical areas to prevent washouts by storm water or other inconvenience, CONTRACTOR may scarify wet soils to speed the air-drying process.
- E. No compacting shall be done by CONTRACTOR when the material is more than 1 percent less than the optimum. At such times, CONTRACTOR shall apply water to previously placed material and new material until the material is moistened sufficiently to permit proper compaction.
- F. CLSM shall be utilized as backfill material below underground utilities or inside utilities or pipelines to be grouted in place, as shown on the Drawings, as follows:

1. CLSM shall be placed using a concrete pump and tremie pipe such that CLSM does not fall more than 24-inches from outlet of the tremie pipe to the top of the prepared surface.
2. If the excavation to be filled contains standing water, the tremie pipe shall be lowered to the bottom of the excavation to be filled and CLSM pumped through the pipe. As filling continues, the bottom of the tremie pipe shall not be raised above the level of the top of the CLSM until the specified final grade is achieved.

3.03 GRADING

- A. CONTRACTOR shall perform pre-construction survey to determine if excavation and backfill quantity estimates as shown on the Drawings allow CONTRACTOR to achieve estimated rough grading final elevations.
- B. CONTRACTOR shall uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated as specified in this section.
 1. Provide a smooth transition between adjacent existing grades and new grades.
 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerance.
- C. Final elevations shall be within 0.1 foot of the elevations as shown on the Drawings.
- D. In the event that excavation areas are less than or greater than expected and backfill quantities are increased or reduced as a consequence of changes in excavation volume, CONTRACTOR shall adjust grades and elevations after consultation with ENGINEER, to meet the general intention of relative grades and flow lines as shown on the Drawings, all to the satisfaction of the ENGINEER.

3.04 TESTING

CONTRACTOR shall perform in situ compaction tests, for every 15,000 square feet (for grading activities) and 200 cubic yards of fill (for backfilling activities), to ensure proper execution of the Work, to verify material quality, and to determine compaction characteristics, moisture content, and density of fill and backfill in place. These tests performed by CONTRACTOR will be used to verify that the fill and backfill conforms to the requirements of this Section. ENGINEER may conduct confirmation testing.

PART 4 – PAYMENT

- A. Backfilling and Grading of Crushed Recycled Aggregates for use as Unrestricted Fill, including Placement and Compaction, will not be measured separately. It is considered incidental to Crushing as covered under Bid Form Item 11.1 and described in Section

2050 – Demolition. There shall be no separate payment for CONTRACTOR or Subcontractor incidentals pursuant to implementation and compliance with the requirements of this Section and shall include full compensation for all CONTRACTOR implementation and compliance for Backfilling and Grading of Crushed Recycled Aggregates.

- B. Backfilling of Pea Gravel or Existing Site Backfill into former structures greater than 10 - feet Below Grade will not be measured separately. It is considered incidental to Demolition of Subsurface Structures Greater than 10 - feet Below Grade as covered under the appropriate Bid Form Items and described in Section 2050 – Demolition. There shall be no separate payment for CONTRACTOR or Subcontractor incidentals pursuant to implementation and compliance with the requirements of this Section and shall include full compensation for all CONTRACTOR implementation and compliance for Backfilling of Pea Gravel.
- C. Backfilling of Imported Structural Fill, including Placement and Compaction, shall include all materials, equipment, and labor as required for Backfilling as described in the Specifications. Payment for Backfilling of Imported Structural Fill will be made at the Contract unit price (per Ton) as stated in the Bid Form and shall include full compensation for all CONTRACTOR implementation and compliance for Backfilling of Imported Structural Fill.
- D. Grading will be measured as a unit and shall include all materials, equipment, and labor as required for Grading as described in the Specifications. Payment for Grading will be made at the Contract unit price (per Acre) as stated in the Bid Form and shall include full compensation for all CONTRACTOR implementation and compliance for Grading.
- E. Backfilling and Grading of Pulverized Concrete for use as Restricted Fill, including Placement and Compaction will not be measured separately. It is considered incidental to Concrete Pulverizing as covered under Bid Form Item 11.2 and described in Section 2050 – Demolition. There shall be no separate payment for CONTRACTOR or Subcontractor incidentals pursuant to implementation and compliance with the requirements of this Section and shall include full compensation for all CONTRACTOR implementation and compliance for Backfilling and Grading of Pulverized Concrete.
- F. There shall be no separate payment for CONTRACTOR'S implementation and compliance with the other requirements of this Section.

END OF SECTION